

POWERSTAT®

variable transformers

CATALOG P258G



THE
SUPERIOR ELECTRIC
COMPANY

Bristol, Connecticut, U.S.A.

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from coast . . .

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The Superior Electric Company maintains offices
staffed with competent, experienced sales
engineers in principal cities of the United States.

These offices serve as convenient centers for
consultation and technical assistance near enough
to mean significant savings in time and expense.



On the West Coast the sales office and warehousing
facilities at Van Nuys, California provide fast
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Superior Electric sales engineers are pleased to
work with you on any voltage control problem.

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POWERSTAT®

the COMPLETE LINE of VARIABLE TRANSFORMERS

single phase
three phase
three wire
two wire
above line
to line
open delta
wye connected
132 VA to 217 KVA
motor-driven
temperature-modulating
positioner control
portable
oil-cooled
explosion-proof
limited-range types
line correctors
double-wound

When a company is the leading manufacturer of a product, an intimate knowledge of a wide range of user requirements is developed. Translating this knowledge into a product line has made **POWERSTAT** the most extensive line of variable transformers.

Only the **POWERSTAT** line offers the innumerable standard air-cooled types for manually-operated or motor-driven duty . . . oil cooled models . . . explosion-proof units . . . enclosed types . . . double-wound limited range assemblies . . . line corrector types.

POWERSTAT is the quality variable transformer . . . designed, engineered and manufactured to user requirements for long, dependable service.

GENERAL FEATURES

POWERSTAT® variable transformers

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A **POWERSTAT** variable transformer is an autotransformer of toroidal core design with a movable brush-tap riding on the rhodium-plated bared portion of the winding. Rotation of the brush-tap by either manual or motor-driven means delivers any output voltage in the range from zero to or above line voltage. **POWERSTATS** are quality-built variable transformers which have inherent characteristics assuring reliable performance and long life.

EXCELLENT REGULATION

POWERSTAT delivers the desired voltage with only a negligible variation in output voltage from no-load to full-load current. The typical regulation curve shown in Figure A shows the voltage drop at any brush setting when full load is applied. Individual regulation curves are shown for all **POWERSTATS** described in this catalog in the section devoted to the particular **POWERSTAT**.

HIGH EFFICIENCY

The watts loss of every **POWERSTAT** is very low in contrast to the inefficient wasteful control provided by rheostats and other resistive type of controllers. A typical efficiency curve is shown in Figure B. An individual efficiency curve is given for each **POWERSTAT** in the section devoted to the particular type.

SMOOTH CONTROL

The output voltage of a **POWERSTAT** can be considered continuously adjustable. The voltage between turns is a fraction of a volt and the brush-tap is always in contact with one or more turns of the winding. Adjustment of output voltage can be made to a fraction of a volt.

LONG LIFE

POWERSTATS give reliable performance over extended periods of time even under extreme operating conditions. Materials are constantly being improved to give increased life expectancy.

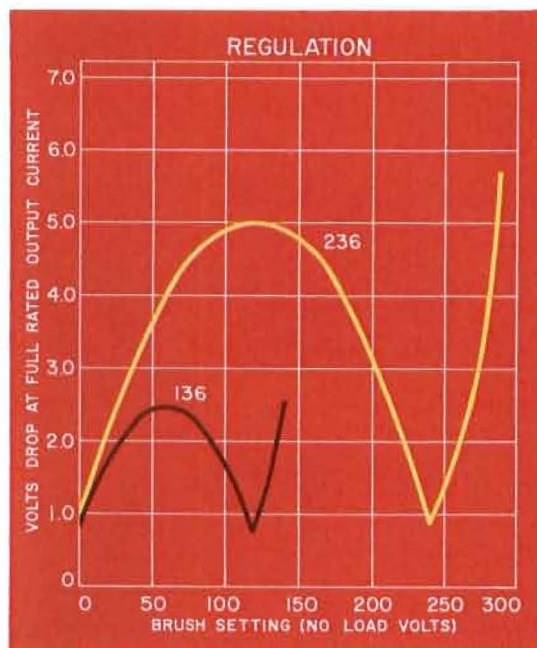


FIGURE A

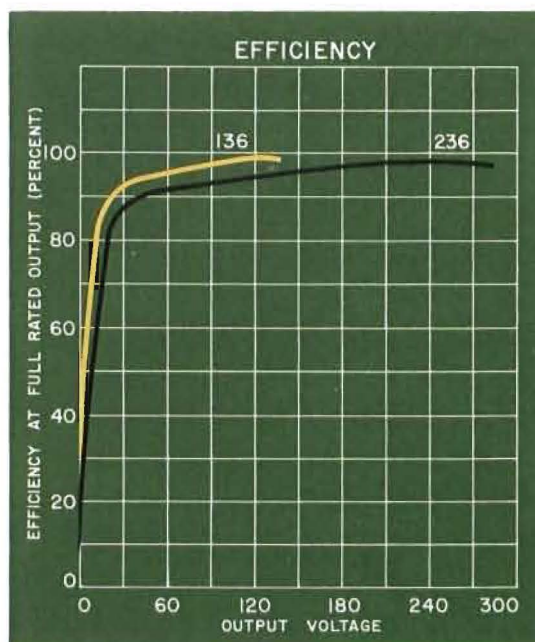
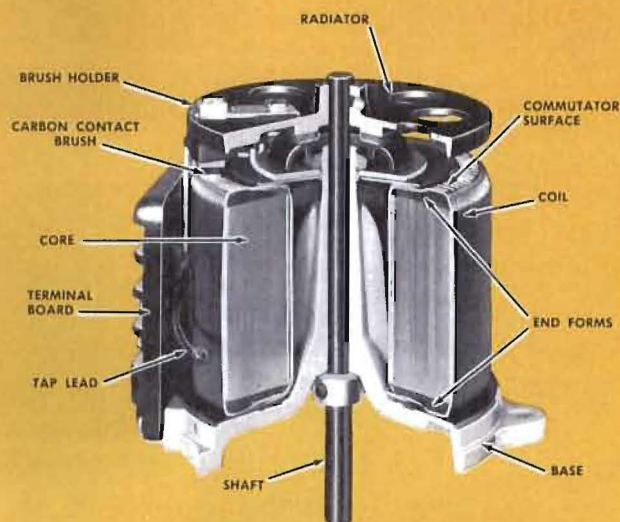


FIGURE B

RUGGED MECHANICAL CONSTRUCTION

All POWERSTATS are designed for heavy-duty operation with parts assembled to meet rigid requirements. The securely mounted core and coil, extra large aluminum brush heat radiator and durable brush assembly reduce the need for attention or replacement.



CUT-AWAY VIEW OF THE CONSTRUCTION OF A POWERSTAT VARIABLE TRANSFORMER

CONSERVATIVE RATINGS

The current rating of all POWERSTATS is the current available over the entire range of output voltage. It is unnecessary to refer to a chart to determine the allowable output current at a particular brush setting. Overloads of short duration can be safely handled. A listing of all applicable rating data is impracticable for the limitless variety of overload conditions. Consult the factory for applications involving unusual overload operation.

ZERO WAVEFORM DISTORTION

A POWERSTAT provides an output voltage which is a faithful and distortionless reproduction of the applied input waveform. This is a required feature of many electronic applications and is a result of superior core and coil design and the use of highest grade silicon steel.

EASY INSTALLATION

POWERSTATS can be readily adapted for bench, wall or back-of-panel mounting. All arrangements for mounting and electrical connections are designed for user convenience. Some POWERSTAT types have binding post type terminals which allow clip-lead, spade lug, banana plug, wire clamp and wrap around connections. Terminals on all types are easily accessible.

NEGLECTIBLE MAINTENANCE

With ordinary care and attention to the operating instructions, the only elements that may require periodic inspection and maintenance are the brushes. Replacement of the brushes is infrequently needed because they are made of a special carbon and are of a design that assures perfect contact of the brush to the commutator at any setting.

LOW OPERATING TORQUE

The glass-smooth commutator surface, the constant and correct contact pressure of the brush-tap to the commutator and the stable positioning of coil and internal components result in the low operating torque of all POWERSTATS. The driving torque for the individual POWERSTATS is given in the section devoted to the particular type.

MODERATE TEMPERATURE RISE

Operating temperature rise for POWERSTATS is less than 50°C above ambient. The ratings given in this catalog are for operation at ambient temperatures of -20°C to +40°C at full rated load. Above 40°C a POWERSTAT must be derated in accordance with Figure A on page 13.

RHODIUM PLATED COMMUTATOR

A special rhodium plating and polishing process produces a glass-smooth commutator surface which is forever free of oxides. Smooth performance and longer life is assured because of the reduced corrosion. Maintenance of a uniform contact drop allows greater overload characteristics.

LINEAR OUTPUT VOLTAGE

The angle of rotation from zero to maximum output voltage is given for each POWERSTAT in the section devoted to the particular POWERSTAT. Output voltage is continuously adjustable from zero to maximum output voltage proportionately over the full range.

MANUALLY-OPERATED TYPES AND METHODS OF MOUNTING

POWERSTAT® variable transformers

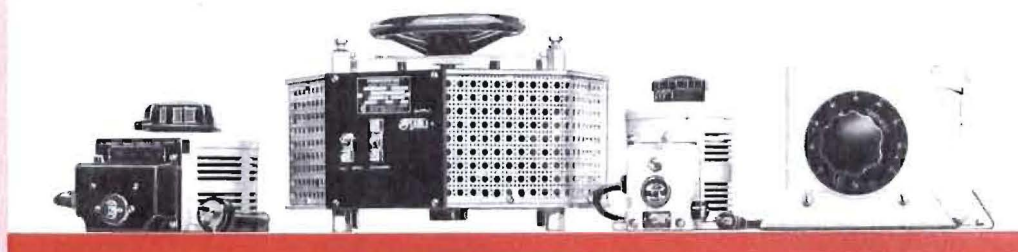
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MANUAL OPERATION

Manually-operated POWERSTATS are available in all types except those larger than six-gang 1156C-1256C series assemblies. The brush tap is rotated by means of a knob or handwheel in an appropriate size for the frame and driving torque of the particular POWERSTAT.

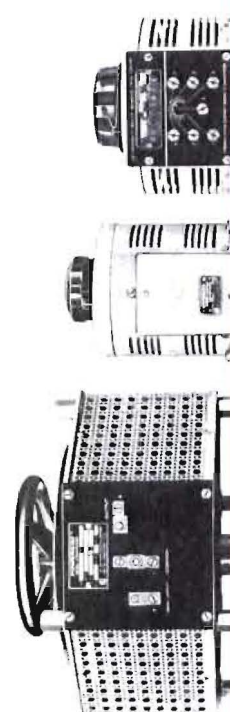
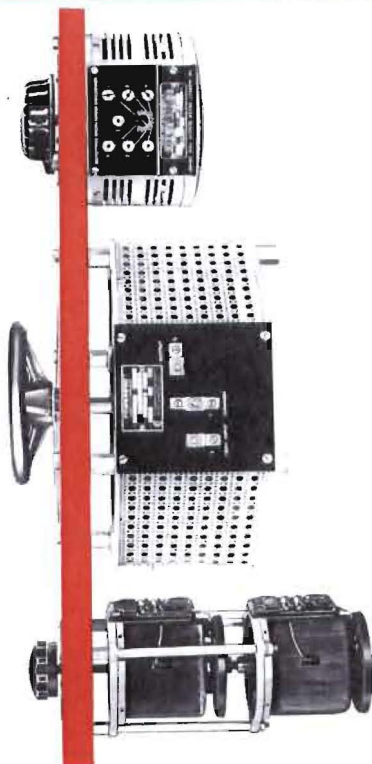


MOUNTING



GENERAL UTILITY

mounting includes all applications where the POWERSTAT is either used on a bench, wall or floor or affixed to any plane surface with the complete POWERSTAT, including the knob, mounted on the same side of the mounting surface.



BACK-OF-PANEL

mounting is usually employed where the POWERSTAT is incorporated with other equipment. The POWERSTAT is mounted on one side of a panel with the shaft protruding through a hole in the panel. The dial and knob or handwheel are installed at the other side of the panel.

10 and 20 SERIES POWERSTATS

are for back-of-panel mounting only. The only exception is type 2PF10 which is a portable unit having a cord-plug set and receptacle for connection.

116, 117, 216 and 217 SERIES POWERSTATS having enclosed construction are for general utility mounting. Types 116, 216 and those prefixed 2PF, 3PF, 3TF or 3PN are self-contained with input cord-plug sets and output receptacles for connection. Units having open construction (suffixed U or UM) are for back-of-panel mounting. Single units of the Q type can be either general utility or back-of-panel mounted.

EN116, EN117, EN216 and EN217 SERIES POWERSTATS

are enclosed POWERSTATS with wide flexibility in choice of mounting positions. They can be mounted vertically or horizontally on a wall or panel, bench, side of a machine, suspended under a bench or back-of-panel mounted.

136-236 and LW136 SERIES POWERSTATS

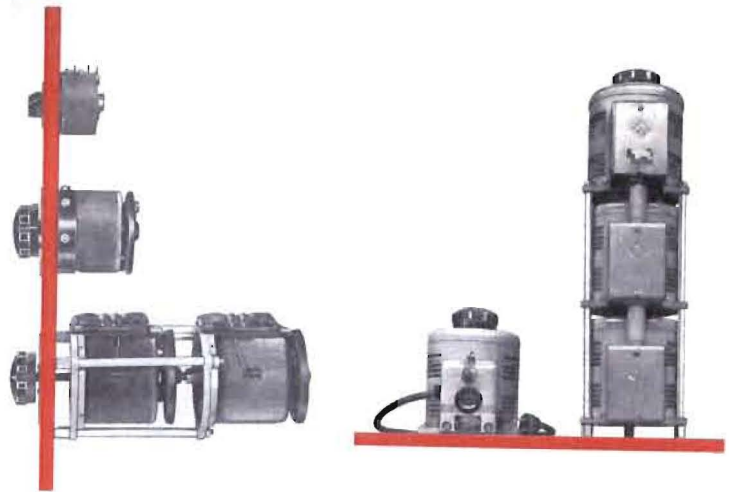
are for both back-of-panel and bench or wall mounting. When back-of-panel mounted the shaft extends from the base end of the assembly through the shaft hole in the panel. The knob and dial are then affixed at the other side of the panel. Single units have a free-mounted shaft and ganged units are provided with separate short shaft extensions that can be quickly adjusted to permit conversion from one method of mounting to the other. POWERSTATS prefixed 2PF, 2TF, 3PF, 3TF and 3PN are self-contained assemblies having cord-plug sets and receptacles for connection.

1156C-1256C and LINE CORRECTOR SERIES POWERSTATS

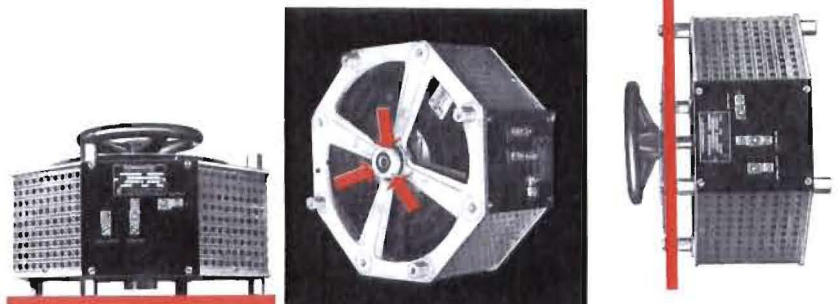
in all types are for general utility mounting. Single units, two-gang and three-gang assemblies can be back-of-panel mounted also. In either position the handwheel and dial are located at the top end of the assembly. When back-of-panel mounting it is necessary to make a simple adjustment to extend the shaft to compensate for the panel thickness. All ganged units should be provided with additional support when back-of-panel mounted. On Line Corrector types only the variable transformer component is back-of-panel mounted in the manner shown. The fixed-ratio transformers are mounted separately, usually on the floor or on a bench.

OIL-COOLED POWERSTATS

are for bench or back-of-panel mounting and **EXPLOSION-PROOF POWERSTATS** are for wall mounting only.



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POWERSTAT® variable transformers

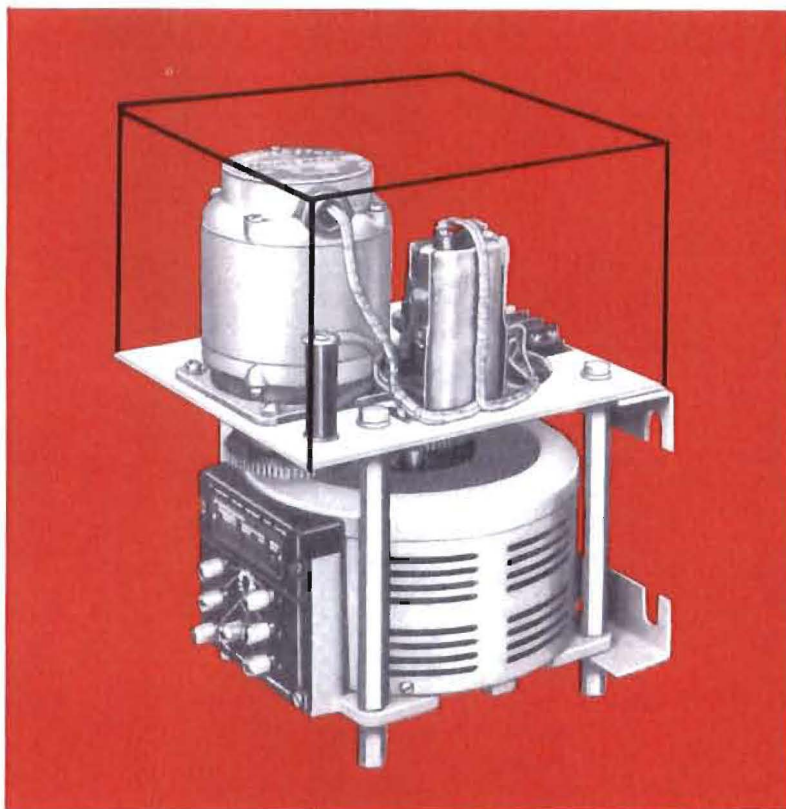
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MOTOR-DRIVEN OPERATION

Motor-driven POWERSTATS permit remote control of large amounts of power by either effortless "finger-tip" operation or by electric proportional control. The POWERSTAT can be installed in any out-of-the-way space and the control station placed where desired. Extreme flexibility in system design is possible because the control location does not have to accommodate the POWERSTAT assembly. Standard motor-driven POWERSTATS are available in the 136-236, 1156C-1256C, LW136 and Line Corrector series. They have the same electrical ratings as their corresponding manually-operated types.

The motor-drive assembly is a compact integral unit housed in a grey enameled enclosure. Knockouts are provided for connection to the motor terminals with BX cable or equivalent. The motor is a special synchronous unit with a ball bearing mounted rotor. It has two windings with externally mounted capacitor and resistor and operates on 120 volt, 60 cycle single phase lines. Standard motors are available for 50 cycle operation also. Frequency must be specified when ordering because the motors are frequency sensitive. Current requirement of the motor is less than 0.5 ampere.

Standard motor-driven POWERSTATS are available in speeds of 5, 15, 30 and 60 seconds for full range travel from zero to maximum output voltage. Motors with 5 second speeds have direct drives to the POWERSTAT shaft. A smooth, quiet planetary gear reduction unit is mounted on the motor shaft for use with 15, 30 and 60 second speeds. Limit switch control at the lower and upper limits of travel prevent chattering against the brush stop. The motor circuit diagram is shown in Figure A.



TYPE 15MB236

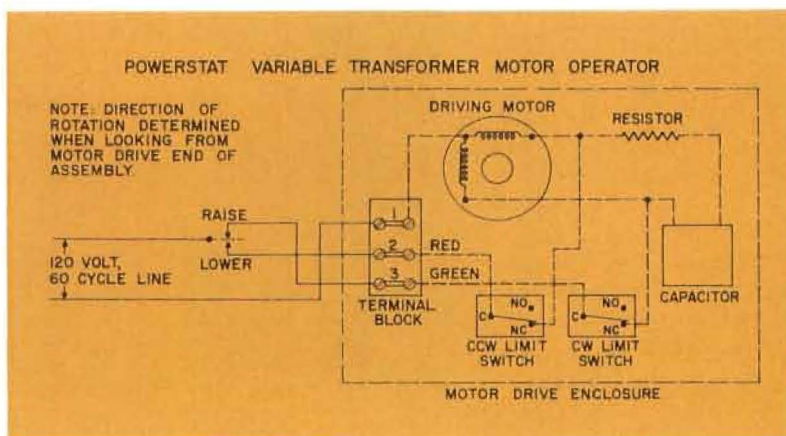


FIGURE A

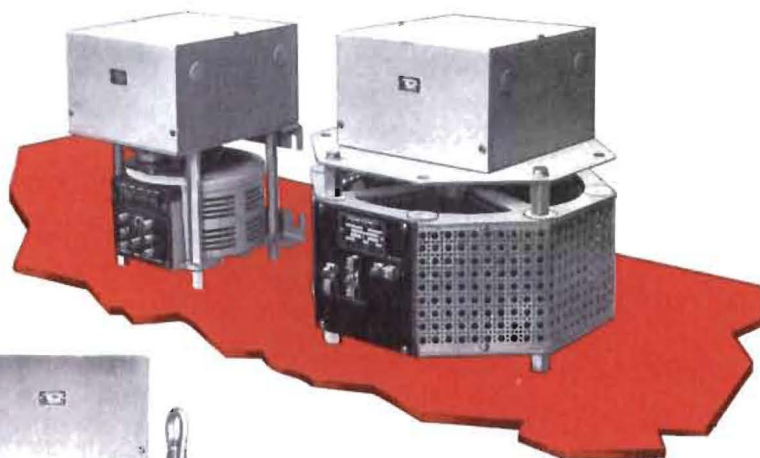
All motor-driven POWERSTATS of the 136-236 and LW136 series are prefixed with the desired speed in seconds and the letters MB. Those of the 1156C-1256C and Line Corrector series are prefixed by the desired speed in seconds and the letter M. For example: 15MBLW136 and 15M1156C.

MOUNTING

136-236 and LW136 SERIES POWERSTATS

of the motor-driven type are provided with standoffs for bench mounting and brackets for wall mounting. It is possible to floor mount a motor-driven POWERSTAT of these series by making a suitable adapter plate that can be fastened to the floor by means of lag screws.

TYPE 15MB236-S
wall mounted



TYPE 15MB236
and
TYPE 15M156C
bench mounted

1156C-1256C and LINE CORRECTOR POWERSTATS

of the motor-driven type are ordinarily bench or floor mounted. Standoffs are provided on single units, two-gang and three-gang assemblies for bench mounting. Suitable adapter plates can be made for use when floor mounting is desired. Motor-driven POWERSTATS of these series larger than three-gang are mounted on a channel iron platform for floor mounting. Additional support should be provided for wall mounted ganged assemblies. It is recommended that the assembly be mounted on a shelf if it is to be mounted against a wall.



TYPE 15M156C-4D
floor mounted

METHODS OF CONTROL FOR MOTOR-DRIVEN TYPES and MODULATING POWERSTATS

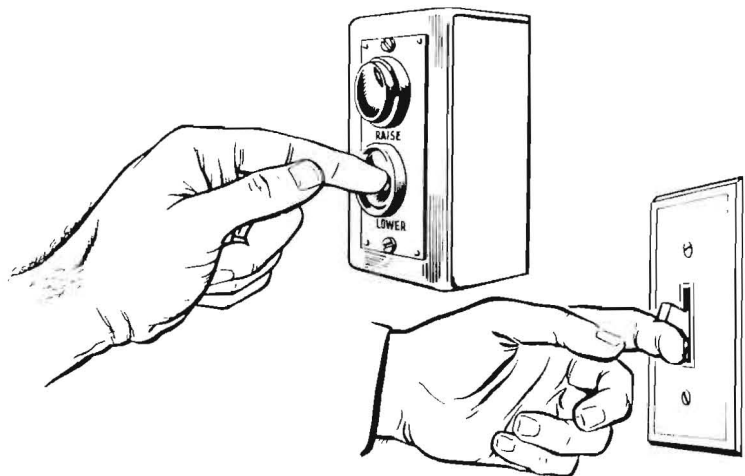
POWERSTAT® variable transformers

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All the methods of control described in this section are offered by The Superior Electric Company for use with motor-driven POWERSTAT assemblies. Specific control requirements should be forwarded to the factory for recommendations.

PUSHBUTTON OR RAISE-LOWER SWITCH

A motor-driven POWERSTAT is usually controlled by a momentary contact raise-lower switch of either the lever-action or the push-button type. The POWERSTAT can be located in any convenient space and the raise-lower switch placed near at hand for remote operation. Ordinarily one switch is used to operate each POWERSTAT as shown in Figure A.



POSITIONER CONTROL

Another method of motor-driven POWERSTAT control is the positioner which is essentially a potentiometer and balancing circuit. As the handle on the positioner is moved up or down the motor-driven POWERSTAT follows. A positioner control has two advantages over the raise-lower switch type of control.

The positioner can be pre-set eliminating the need of holding the switch. This means the positioner can be set to a specified value ahead of time and when actuated will set the output voltage of the POWERSTAT to the specified value.

The other advantage of the positioner control is the console-type of operation that is possible.

Two or more motor-driven POWERSTATS can be controlled from a single compact control station with a minimum of effort. Complete programs of operation can be pre-set and energized at the proper intervals.

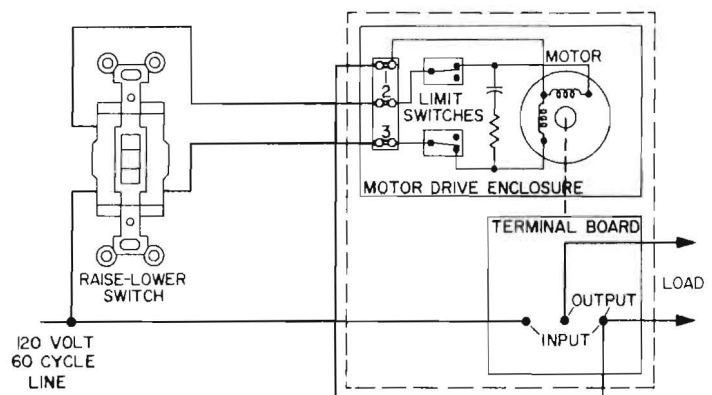
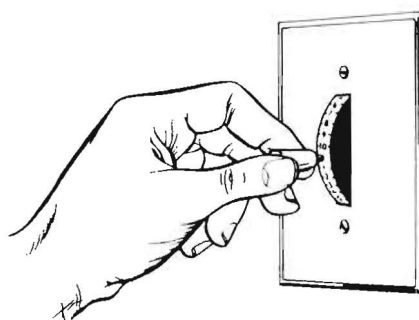


FIGURE A



POSITIONER CONTROL

MODULATING POWERSTATS

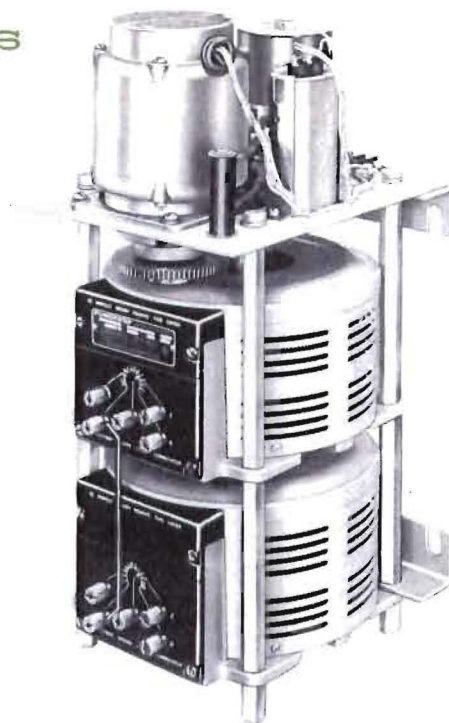
MODULATING POWERSTATS provide sensitive control for electrically operated process equipment such as electric furnaces or refrigeration units, conveyor systems, dry feeders and many others.

Modulating POWERSTATS were originally developed as specialized units for temperature control operations using electric proportional control. In a typical temperature control system, changes which bring about a temperature variation cause a rebalancing action in the detecting instrument thereby sending the proper control signal to the Modulating POWERSTAT. The motor-driven POWERSTAT incorporates a suitable potentiometer or slidewire resistor coupled to its shaft. The received signal energizes the "raise" or "lower" windings of the driving motor so that the POWERSTAT rotates to a position that supplies the precise amount of power required to match the heat loss in the system.

Inherent stability is one of the principal advantages of Modulating POWERSTATS. As shown in Figure B, the precise modulated power reaches and maintains the desired temperature without the wide time lag fluctuations, cycling and overshoot characteristics of old style "on-off" controllers. Modulating POWERSTATS can be used in installations where the thermal shock of turning furnaces on and off might affect the life of the equipment.

Another important consideration in the selection of an all-electric control system is the convenience and practicality of installing the Modulating POWERSTAT in locations where circumstances do not permit the use of other types of non-electric control equipment.

All the motor-driven assemblies described in this catalog can be supplied as Modulating POWERSTATS to be used in conjunction with proportioning control systems offered by various instrument manufacturers. Control requirements should be submitted to the factory for recommendations regarding the Modulating POWERSTAT best suited for the application.



TYPE 136-1003

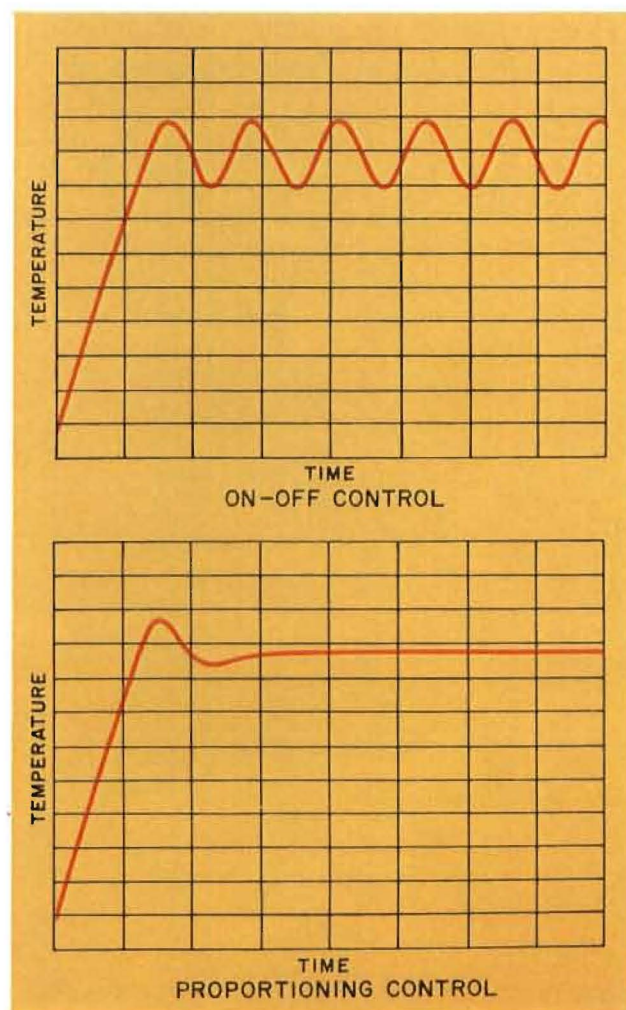


FIGURE B

GENERAL INFORMATION

POWERSTAT® variable transformers

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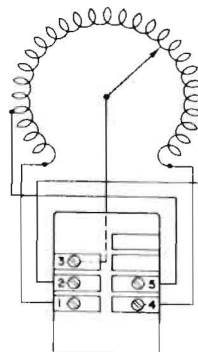
This catalog is your guide for the selection of the correct POWERSTAT for your specific application. The rating charts on pages 97, 98, 99, 100, 101 and 102 list the complete standard line of POWERSTAT variable transformers. Sections of the catalog are devoted to the 10, 20, 116-117-216-217, 136-236, 1156C-1256C, VOLTBOX, Explosion-proof, Oil-cooled, LW136 and Line Corrector series. Each series has general characteristics and model information together with connection and dimension data on individual types of POWERSTATS.

TYPES AND CHARACTERISTICS

Each section begins with a brief introduction giving the special features of the series. Electrical and mechanical characteristics applicable to the entire series is given in addition to a description of rating and mounting data for each POWERSTAT type. The information includes the maximum core and brush loss in watts when operating under no load at 60 cycles; d-c resistance of the coil; and approximate driving torque required to turn the POWERSTAT shaft.

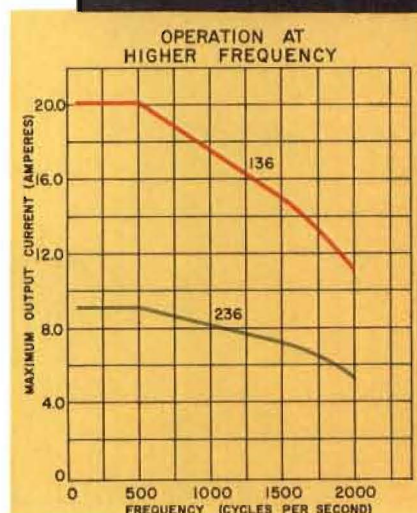
COIL TO TERMINAL WIRING

Internal wiring showing the coil to terminal connections is given for each type.



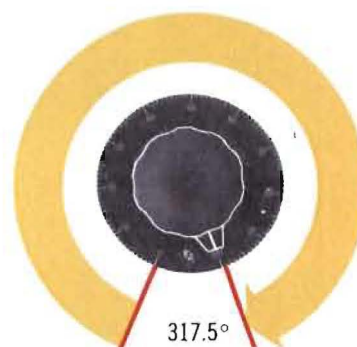
CURVES

Applicable curves are plotted for each series to show the reduction in allowable output current when POWERSTATS are operated at higher frequencies; operation on the lower voltage input tap for units which have the dual input feature; regulation showing the voltage drop at any brush setting when full load is applied; and the efficiency at all output voltages under full rated load.



DIALS AND ANGLE OF ROTATION

The standard dial and knob or handwheel is given for each type to show style and dial calibration. The angle of rotation from zero to maximum output voltage is also given.



INDIVIDUAL POWERSTAT SPECIFICATIONS

Complete specifications are given for individual POWERSTATS following the type and characteristics information. A typical page has a photograph, outline dimensions, and ratings and connections of each POWERSTAT. Some of the terminology used throughout the catalog is defined below.

TERMINOLOGY

INPUT VOLTAGE:	The supply voltage connected to the input terminals.
OUTPUT VOLTAGE:	The range of voltage delivered at the output terminals.
MAXIMUM OUTPUT KVA:	Maximum output voltage multiplied by the maximum output amperes divided by 1000.
NO-LOAD LOSS:	The core and brush loss of a POWERSTAT at 60 cycles when there is no load applied.
JUMPER TERMINALS:	Terminals to be connected by jumpers between units in a ganged assembly. All two-gang and three-gang POWERSTATS except parallel connected 1156C-1256C series units are provided with jumpers in the standard common position that should be moved or removed as required.
FREQUENCY:	Normal operating frequency in cycles per second for the connection given. All POWERSTATS rated for 50 60 cycle service can be operated at 25 cycles with the same current rating but at only one half the rated voltage and output KVA.

AMBIENT TEMPERATURE

All POWERSTATS are rated for operation at ambient temperatures between -20°C and $+40^{\circ}\text{C}$ at full rated load.

When operation is required in ambient temperatures higher than 40°C the output current must be reduced according to the curve shown in Figure A.

MILITARY SPECIFICATIONS

All standard POWERSTATS are available on special order to meet applicable military specifications on humidity, shock, vibration, inclination, corrosion, high and low ambient temperature, fungus treatment, etc.

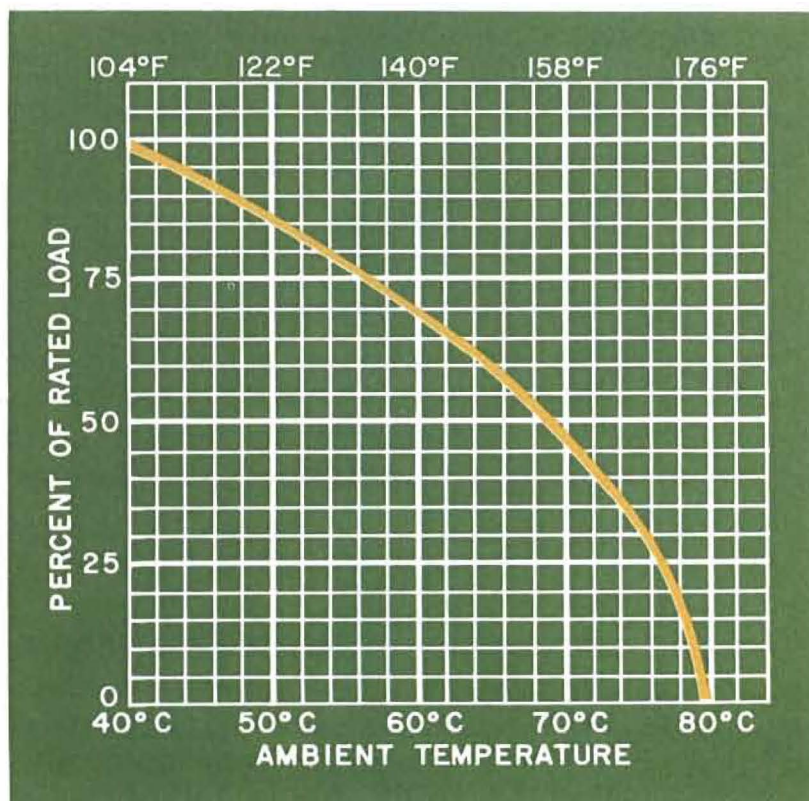


FIGURE A

POWERSTAT® variable transformers

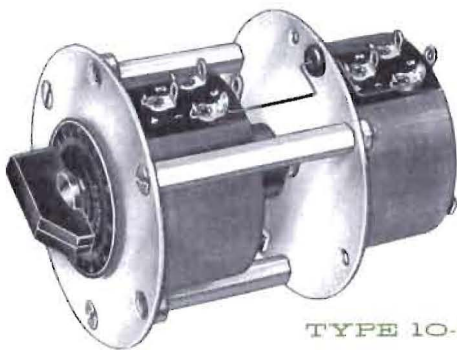
POWERSTAT variable transformers of the 10 series find wide use in those variable a-c voltage applications having relatively low wattage requirements. The complete range of models in the series meets the needs of most applications which formerly employed inefficient, wasteful, bulky rheostats and other resistive types of controls.

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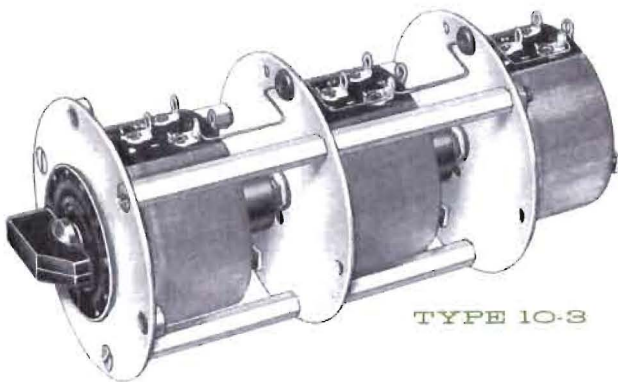
TYPE 2PF10



TYPE 10



TYPE 10-2



TYPE 10-3

TYPE 2PF10

A portable unit in a sturdy cast zinc housing. Has a 6 foot cord-plug which provides two receptacles and a 1.0 ampere fuse housed in the plug end of the cord. Has readily accessible "on-off" switch. It can be plugged into a 120 volt, 60 cycle, single phase outlet to deliver a 0-132 volt, 1.0 ampere output. Excellent laboratory or shop source of adjustable a-c voltage.

TYPE 10

Single unit for back-of-panel mounting with a depth behind panel of only 2-1/16 inches. Single hole mounting is fast and simple in panels up to 1/4 inch thick. Operates from a 120 volt, 60 cycle, single phase input with an output of either 0-132 or 0-120 volts, 1.25 amperes. The input can be 50/60 cycle when connected for an output of 0-120 volts.

TYPE 10-2

Two-gang assembly for either 240 volt single phase or 120 volt three phase service. Series connection delivers either a 0-264 or 0-240 volt, 1.25 ampere output from a 240 volt, 60 cycle single phase input. Connections for a 0-240 volt output can also be used with a 240 volt, 50 cycle single phase input. For three phase operation the units are open-delta connected and deliver an output of either 0-132 or 0-120 volts, 1.25 amperes from a 120 volt, 60 cycle three phase input. Tapping arrangement also permits use of a 120 volt, 50 cycle three phase input when connected to deliver an output of 0-120 volts.

TYPE 10-3

Three-gang assembly wye connected to deliver a 0-240 volt, 1.25 ampere output from a 240 volt, 60 cycle three phase input. These units cannot be used for over voltage operation.

Coil to terminal wiring for POWERSTATS of the 10 series is shown in Figure A. The tapping arrangement permits an output voltage range of zero to line voltage or to 10 per cent above line voltage. Compensation may be made for a 10 per cent drop in line voltage as well as providing a wider working range. For additional flexibility, types 10, 10-2 and 10-3 can be connected to deliver an increasing output voltage of zero to line voltage with either clockwise or counterclockwise knob rotation. As shown in Figure C, any type in the 10 series can be operated at any frequency between 60 and 2000 cycles without reduction in allowable output current. Figure D shows the regulation curve for POWERSTATS of the 10 series operating at full load current. The curve shows the voltage drop at any brush setting when full load is applied. For less than full load, voltage drop is proportional to the load. Figure E shows the efficiency of POWERSTATS of the 10 series at all output voltages under full rated load. The d-c resistance of a 10 series coil is 20.0 ohms. The maximum core and brush loss in watts when operating under no load is given in the chart.

Types 10, 10-2 and 10-3 are of open construction designed for back-of-panel mounting only. Type 10 has a 1/16 inch high non-turn device for keying the unit to the panel. All types have a 2 inch dial as shown in Figure B and an angle of rotation of 318.5° from zero to maximum output voltage.

TYPE	Approximate Driving Torque (Ounce-Inches)	No-Load Loss at 60 Cycles (Watts)
2PF10	5	2.0
10	5	2.0
10-2	15-20	4.0
10-3	20-30	6.0

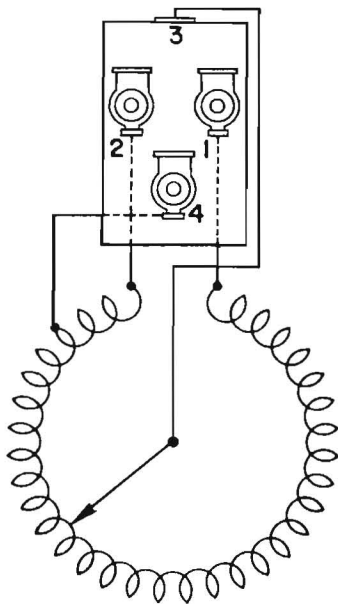


FIGURE A

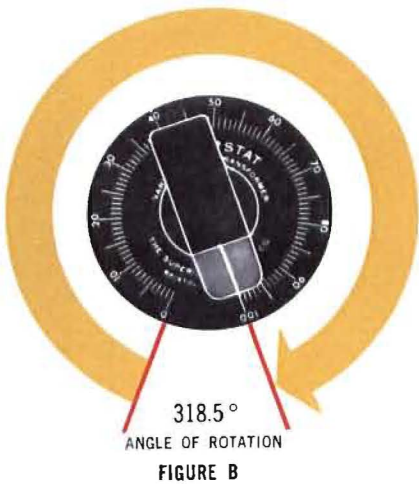


FIGURE B

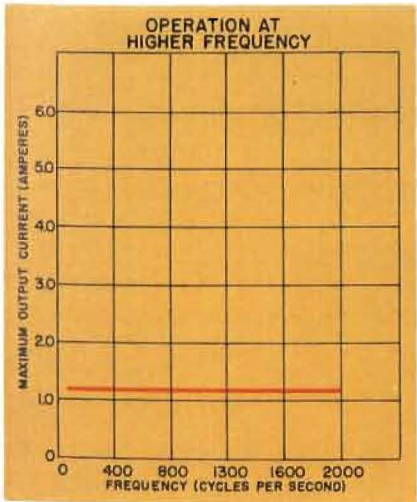


FIGURE C

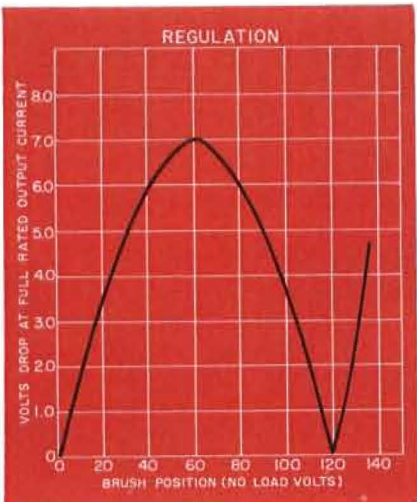


FIGURE D

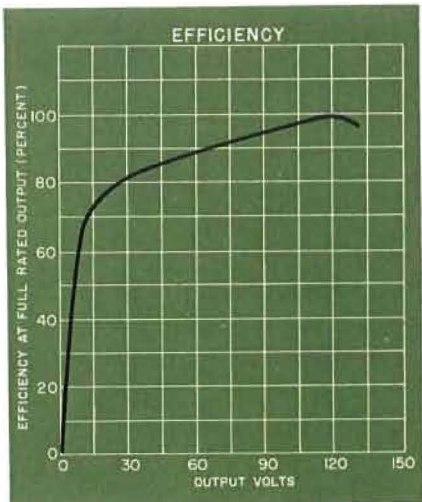
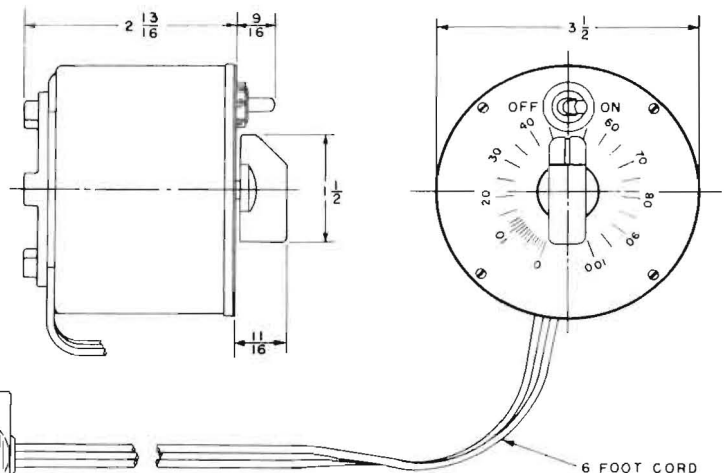


FIGURE E

POWERSTAT® variable transformersTYPE **2PF10**

OUTLINE DIMENSIONS



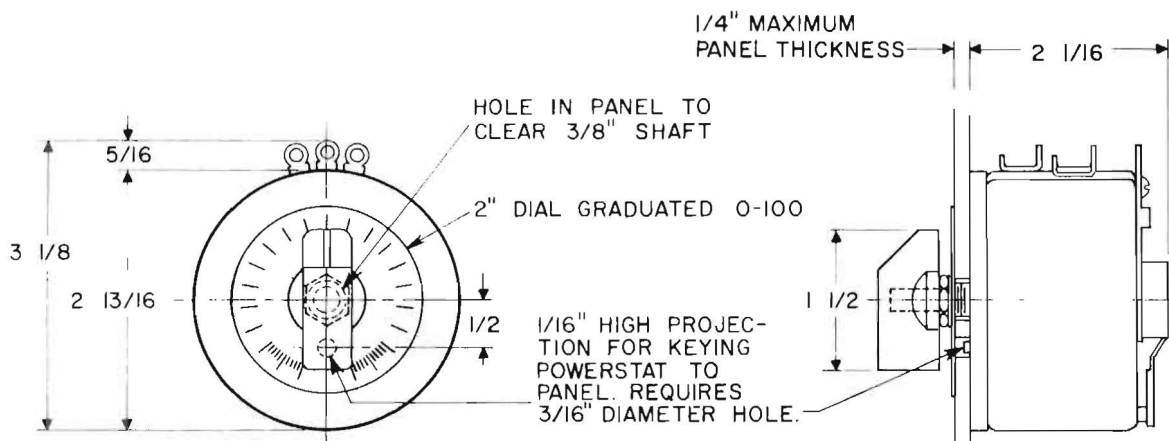
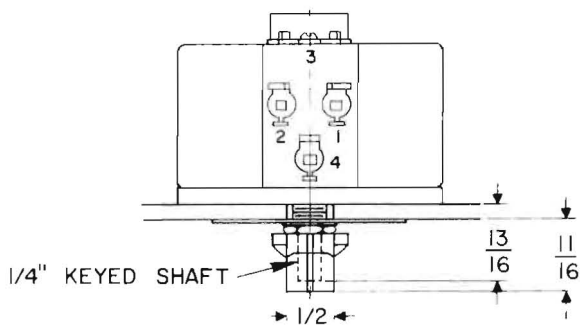
COMBINATION PLUG AND DOUBLE
OUTPUT RECEPTACLE. ALSO CONTAINS
1 AMP. 125 V.A.C. FUSE.

CONNECTIONS AND RATINGS FOR TYPE 2PF10

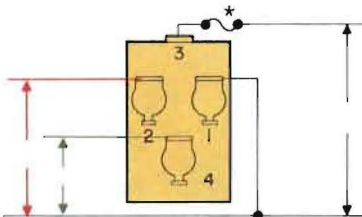
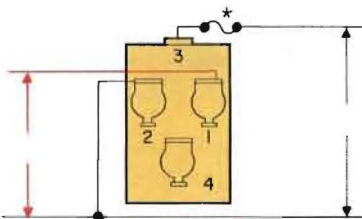
TYPE	CONNECTION	KNOB ROTATION	INPUT		DIAGRAM	OUTPUT		
			VOLTS	CYCLES		MAX. AMPS	VOLTS	MAX. KVA
2PF10	SINGLE PHASE	CW	120	60		10	0-132	.132

OUTLINE DIMENSIONS

TYPE 10

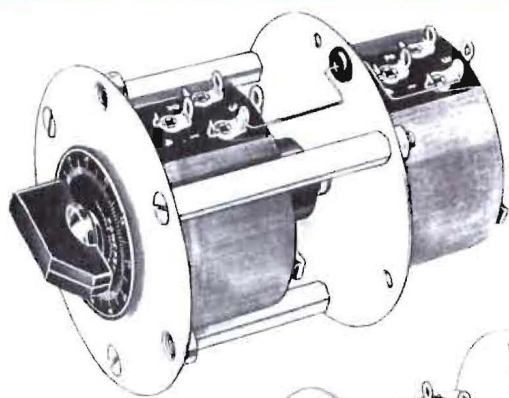


CONNECTIONS AND RATINGS FOR TYPE 10

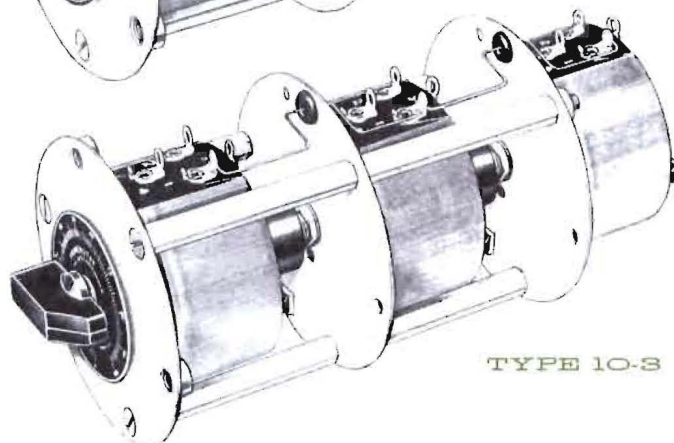
TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING ONLY										
10	SINGLE PHASE	CW	120	60	1-4		1-3	1.25	0-132	.165
		CW	120	50/60	1-2		1-3	1.25	0-120	.150
10	SINGLE PHASE	CCW	120	50/60	1-2		2-3	1.25	0-120	.150

*1.5 Ampere fuse recommended (not supplied).

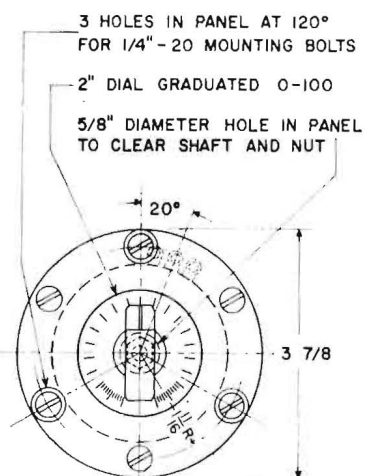
*1.5 Ampere fuse recommended (not supplied).

POWERSTAT® variable transformers

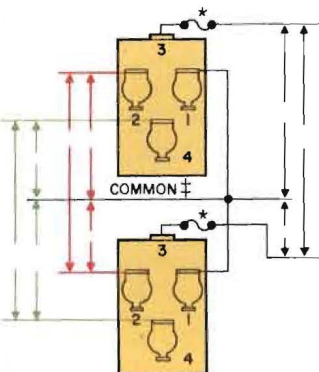
TYPE 10-2



TYPE 10-3

FRONT VIEW
Types 10-2 and 10-3

CONNECTIONS AND RATINGS FOR TYPE 10-2

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS †	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING ONLY											
10-2	1 PHASE SERIES	CW	240	60	4-4		1-1	3-3	1.25	0-264	.33
		CW	240	50/60	2-2		1-1	3-3	1.25	0-240	.30
		CCW	240	50/60	1-1		2-2	3-3	1.25	0-240	.30
	3 PHASE OPEN DELTA	CW	120	60	4-1-4		1-1	3-1-3	1.25	0-132	.29
		CW	120	50/60	2-1-2		1-1	3-1-3	1.25	0-120	.26
		CCW	120	50/60	1-2-1		2-2	3-2-3	1.25	0-120	.26

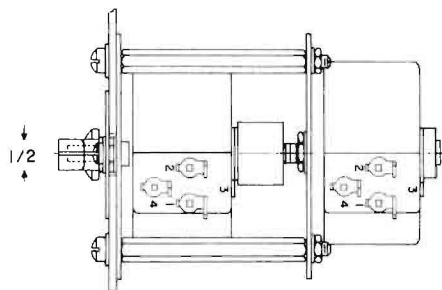
CW ROTATION SHOWN

FOOTNOTES

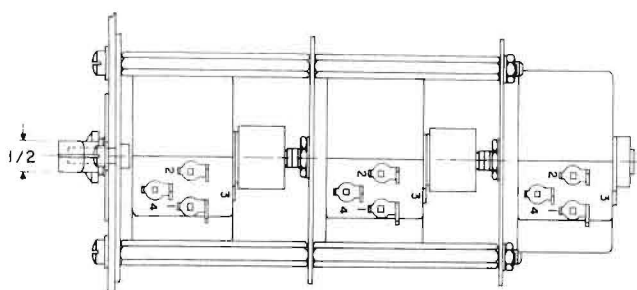
- *1.5 Ampere fuses recommended (not supplied).
†Common used as third leg on 3-phase open-delta or neutral on 3-wire single phase connection; not used on 2-wire single phase connection.
‡Jumper provided in standard common position may be moved or removed as required.

OUTLINE DIMENSIONS

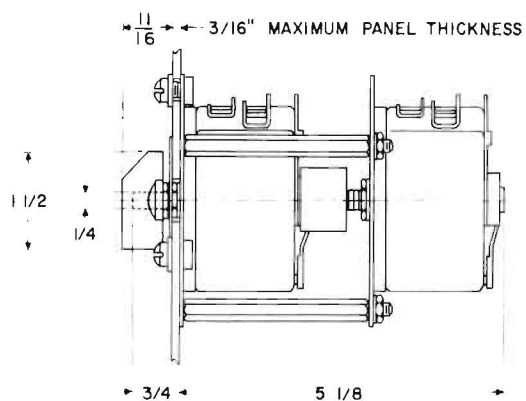
TYPES 10-2 and 10-3



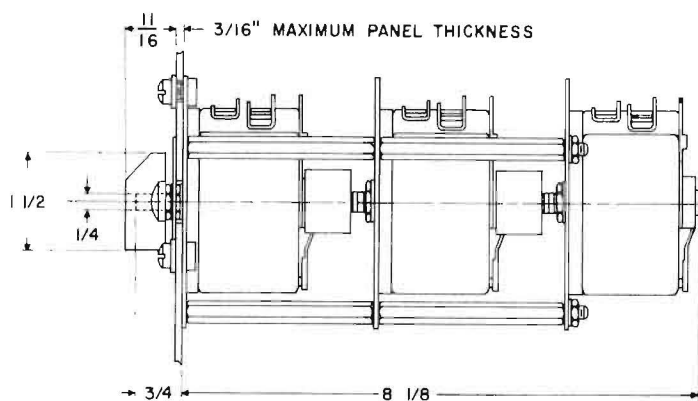
TOP VIEW
Type 10-2



TOP VIEW
Type 10-3

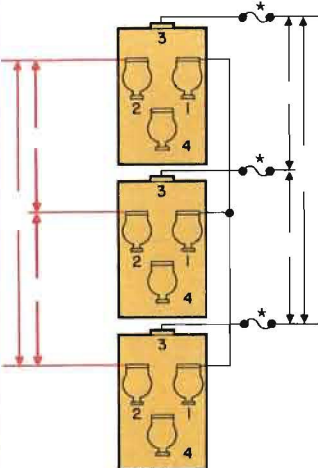


SIDE VIEW
Type 10-2



SIDE VIEW
Type 10-3

CONNECTIONS AND RATINGS FOR TYPE 10-3

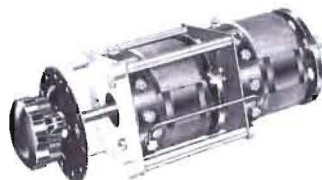
TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS †	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING ONLY											
10-3	3 PHASE WYE	CW	240	60	2-2-2		1-1-1	3-3-3	1.25	0-240	.52
		CCW	240	60	1-1-1		2-2-2	3-3-3	1.25	0-240	.52
CW ROTATION SHOWN											
FOOTNOTES		{ * 1.5 Ampere fuses recommended (not supplied). † Jumper provided in standard common position may be moved or removed as required.									

POWERSTAT® variable transformers

POWERSTATS of the 20 series are ideal components for apparatus requiring a variable transformer with a current rating up to 3.0 amperes.



TYPE 20 Operates from a 120 volt, 60 cycle single phase input with an output of 0-140 or 0-120 volts, 3.0 amperes. The input can be either 50 or 60 cycles when connected for an output of 0-120 volts.



TYPE 20-2 Two-gang assembly for open-delta service with an output of 0-140 or 0-120 volts, 3.0 amperes from a 120 volt, 60 cycle three phase input. Connections for a 0-120 volt output can also be used with a 120 volt, 50 cycle input.



TYPE 20-3 Three-gang assembly for 240 volt, three phase service. Wye connected to deliver a 0-240 volt, 3.0 ampere output from a 240 volt, 60 cycle, three phase input. Overvoltage taps are not used when wye connected.

Coil to terminal wiring for POWERSTATS of the 20 series is shown in Figure A. All types in the 20 series can be connected to deliver increasing output voltage with either clockwise or counterclockwise knob rotation. Figure C shows any type in

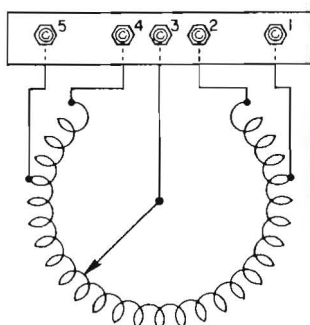
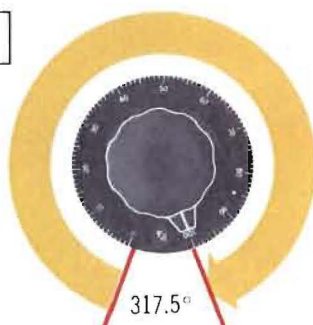


FIGURE A

ANGLE OF ROTATION
FIGURE B

the 20 series can be operated at any frequency between 60 and 2000 cycles without reduction in allowable output current. Figure D is the regulation curve for POWERSTATS of the 20 series operating at full load current. Figure E shows the efficiency of POWERSTATS of the 20 series at all output voltages under full rated load. The d-c resistance of a 20 series coil is 3.8 ohms.

All POWERSTATS of the 20 series are of open construction designed for back-of-panel mounting only. All types have the 4 inch dial shown in Figure B and an angle of rotation of 317.5° from zero to maximum output voltage.

TYPE	Approximate Driving Torque (Ounce-Inches)	No-Load Loss at 60 Cycles (Watts)
20	20-30	3.0
20-2	40-60	6.0
20-3	75-100	9.0

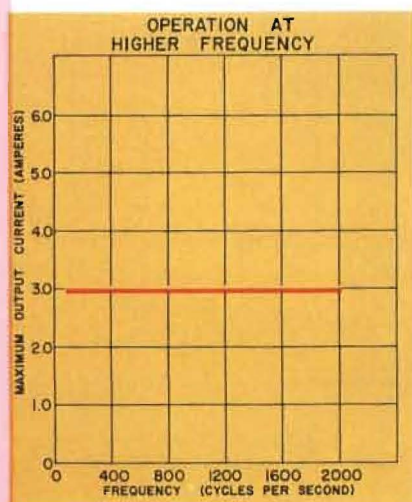


FIGURE C

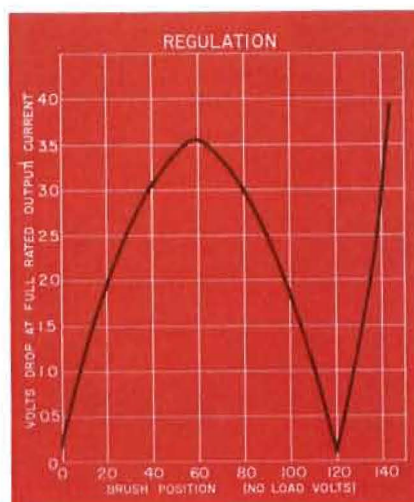


FIGURE D

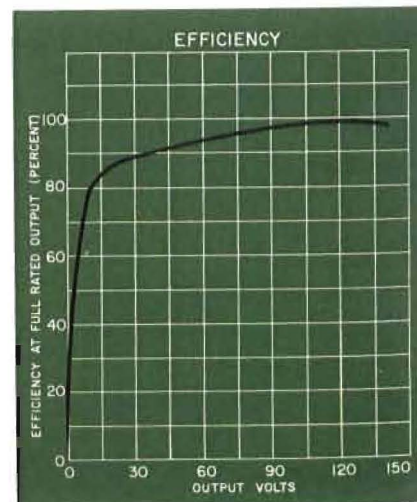


FIGURE E



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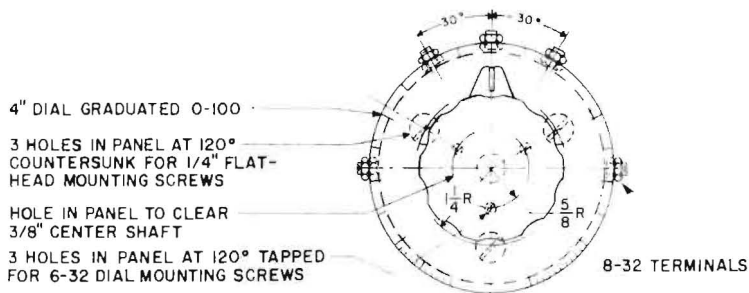
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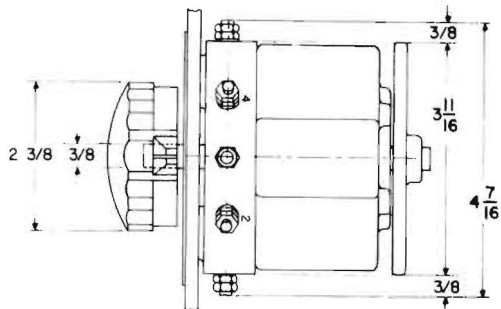
TYPE 20



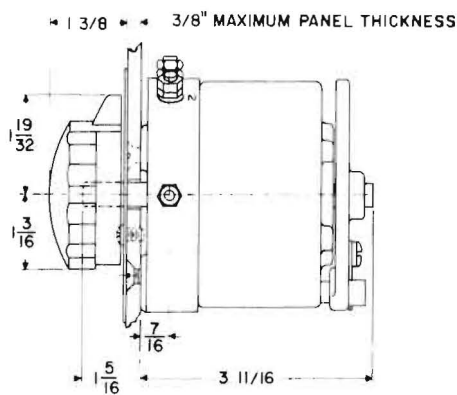
FRONT VIEW

OUTLINE DIMENSIONS

TYPE 20



TOP VIEW



SIDE VIEW

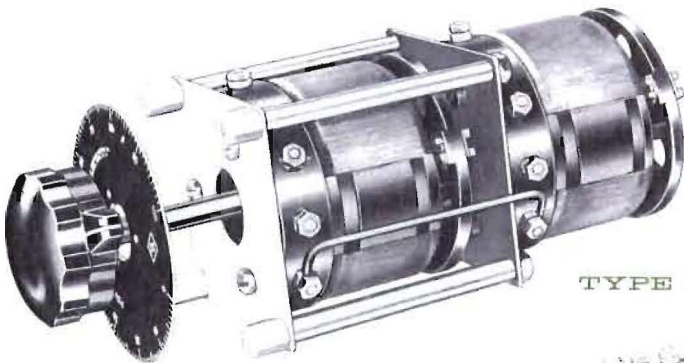
CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA	
FOR PANEL MOUNTING ONLY											
20	1 PHASE	CW	120	60	2-5	 CW ROTATION	2-3	3.0	0-140	.42	
		CW	120	50/60	2-4		2-3	3.0	0-120	.36	
		CCW	120	60	1-4	 CCW ROTATION	3-4	3.0	0-140	.42	
		CCW	120	50/60	2-4		3-4	3.0	0-120	.36	

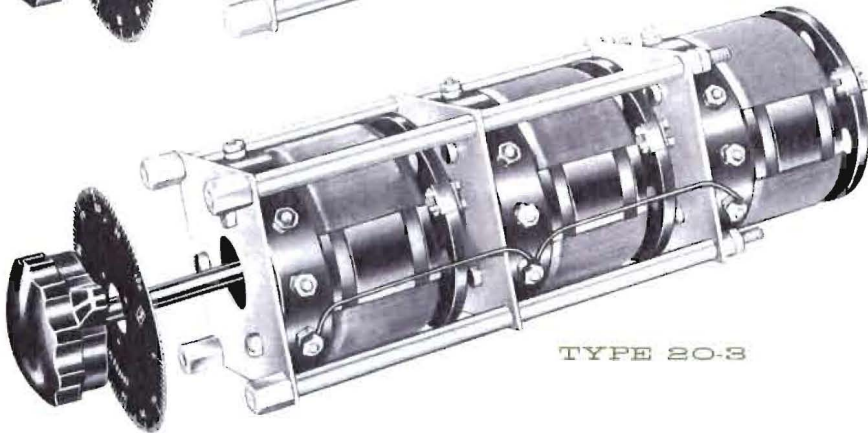
*3 ampere fuse recommended (not supplied).

*3 ampere fuse recommended (not supplied).

POWERSTAT® variable transformers



TYPE 20-2



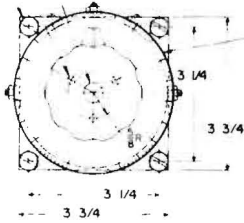
TYPE 20-3

4 HOLES IN PANEL AS SHOWN COUNTERSUNK FOR 1/4" FLATHEAD MOUNTING SCREWS

3 HOLES IN PANEL AT 120° TAPPED FOR 6-32 DIAL MOUNTING SCREWS

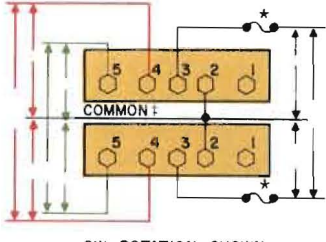
4" DIAL GRADUATED 0-100

HOLE IN PANEL TO CLEAR 3/8" CENTER SHAFT



FRONT VIEW
Types 20-2 and 20-3

CONNECTIONS AND RATINGS FOR TYPE 20-2

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS †	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING ONLY											
20-2	1 PHASE SERIES††	CW	240	60	5-5		2-2	3-3	3.0	0-280	.84
			240	50/60	4-4		2-2	3-3	3.0	0-240	.72
		CCW	240	60	1-1		4-4	3-3	3.0	0-280	.84
			240	50/60	2-2		4-4	3-3	3.0	0-240	.72
	3 PHASE OPEN DELTA	CW	120	60	5-2-5		2-2	3-2-3	3.0	0-140	.73
			120	50/60	4-2-4		2-2	3-2-3	3.0	0-120	.62
		CCW	120	60	1-4-1		4-4	3-4-3	3.0	0-140	.73
			120	50/60	2-4-2		4-4	3-4-3	3.0	0-120	.62

FOOTNOTES { *Three ampere fuse recommended (not supplied).
†Jumpers provided on all ganged units in standard common position should be moved or removed as required.
††Series connection shown is possible but ordinarily POWERSTAT type 216U should be used.
‡Common used as third leg on 3-phase open-delta or neutral on 3-wire single phase connection: not used on 2-wire single phase connection.

TYPES 20-2 and 20-3

TOP VIEW
Type 20-2

TOP VIEW
Type 20-3

page
23

SIDE VIEW
Type 20-2

SIDE VIEW
Type 20-3

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS†	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING ONLY											
20-3	3 PHASE WYE	CW	240	60	4-4-4	 CW ROTATION SHOWN	2-2-2	3-3-3	3.0	0-240	1.2
		CCW	240	60	2-2-2		4-4-4	3-3-3	3.0	0-240	1.2
FOOTNOTES		*Three ampere fuse recommended (not supplied). †Jumpers provided on all ganged units in standard common position should be moved or removed as required.									

POWERSTAT® variable transformers

POWERSTAT variable transformers of the 116, 117, 216 and 217 series are available in single and three phase manually-operated assemblies. The 116 and 117 series operate from 120 volt lines and the 216 and 217 series operate from 240 volt lines. The rated output current available at any brush setting is 10.0 amperes for the 117 series; 7.5 amperes for the 116 series; 4.0 amperes for the 217 series; and 3.0 amperes for the 216 series. For a constant impedance load the maximum rated output current at line voltage is increased to 13.0 amperes for POWERSTATS of the 117 series and 6.3 amperes for those of the 217 series.

With the exception of units prefixed 3PF, 3TF and 3PN, all types can be connected to deliver an increasing output voltage with either clockwise or counterclockwise knob rotation. With the exception of types 116U, Q116U, Q116UM, EN116, 216U, Q216U, Q216UM and EN216 which have standard dials graduated 0-100, all single POWERSTATS have standard dials graduated directly in volts. All ganged assemblies have dials graduated 0-100. Dials graduated 0-100, 0-120, 0-140, 0-240, 0-280 or 100-0 are available on special order. As shown in Figure A, the angle of rotation from zero to maximum output voltage is 317.5°.

0-100	0-120	0-140	0-240	0-280
116U Q116U Q116UM EN116 216U Q216U Q216UM EN216 (Plus all ganged units)	116L 3PF116L 3PN116L 3TF116L 117 2PF117 3PN117 117U Q117U Q117UM EN117	116 3PF116 3PN116 3TF116	216L 3PF216L 3PN216L 3TF216L 217 2PF217 3PN217 217U Q217U Q217UM EN217	216 3PF216 3PN216 3TF216

As shown in Figure B, POWERSTATS of the 116, 117, 216 and 217 series can be operated at any frequency between 60 and 1500 cycles without reduction in allowable output current. Except for 216 types and the 217 types operating at the constant current rating, there is a slight reduction between 1500 and 2000 cycles. Figure C shows the current rating of 216 series POWERSTATS when operated on the lower input voltage tap. Figure D shows the regulation curves for POWERSTATS of the 116, 117, 216 and 217 series operating at full load current. The curves show the voltage drop at any brush setting when full load is applied. For less than full load the voltage drop is proportional to the load. Figure E shows the efficiency of POWERSTATS of the 116, 117, 216 and 217 series at all output voltages under full rated load. The d-c resistance is 0.9 ohms for a 116 series coil, 0.49 ohms for a 117 series coil, 6.5 ohms for a 216 series coil, and 4.2 ohms for a 217 series coil. The maximum core and brush loss in watts when operating under no load is given in the chart. If desired, POWERSTATS of the 116 and 216 series may be ordered so that the maximum output voltage does not exceed the line voltage. When POWERSTATS are ordered this way, an "L" follows the last digit in the type number. For example: 3PN216L. Although not listed as standard assemblies, all POWERSTATS with enclosed construction are available as motor-driven assemblies on special order.

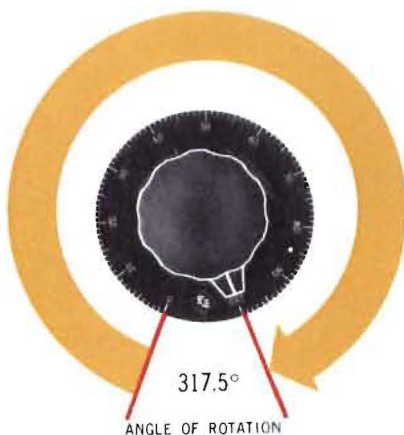


FIGURE A

TYPE*	Approximate Driving Torque (Ounce-Inches)	No-Load Loss at 60 Cycles (Watts)
116	20-30	6.5
117	20-30	8.5
116-2	60-75	13.0
117-2	60-75	17.0
116-3	100-125	19.5
117-3	100-125	25.5
216	20-30	6.5
217	20-30	8.5
216-2	60-75	13.0
217-2	60-75	17.0
216-3	100-125	19.5
217-3	100-125	25.5

*Includes 2PF, 3PF, 3TF, 3PN, Q and U types

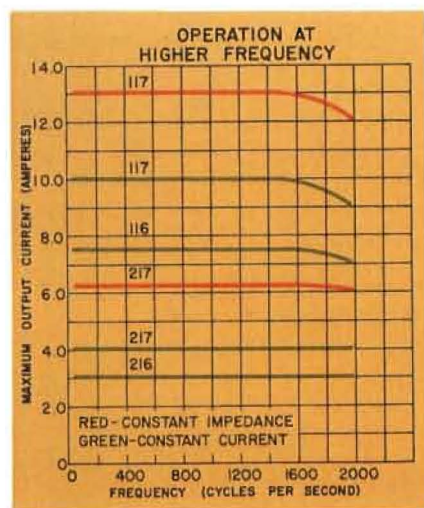


FIGURE B

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TYPE
116



TYPE
117

TYPES 116 and 216

For bench or wall mounting. Type 116 delivers a 0-140 volt, 7.5 ampere output from a 120 volt, 50-60 cycle single phase source. Type 216 delivers a 0-280 volt, 3.0 ampere output from a 240 volt, 50-60 cycle single phase input. The tapping arrangement permits conversion to reversed knob rotation or for limiting the output voltage to line voltage if desired. Each POWERSTAT is supplied with a line switch, fuse, 2-wire parallel blade input cord-plug set and receptacle housed in a cast-aluminum terminal enclosure. Coil to terminal wiring for type 116 is shown in Figure F and for type 216 in Figure G.

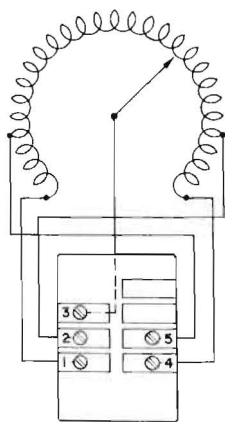


FIGURE F

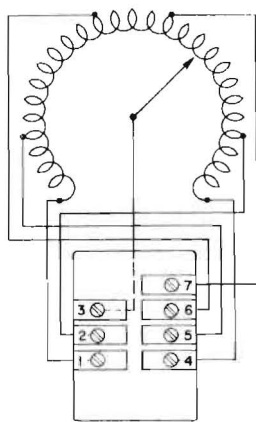


FIGURE G

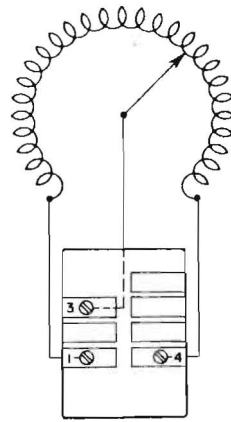


FIGURE H

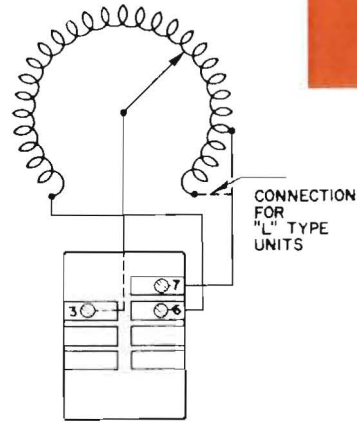


FIGURE I

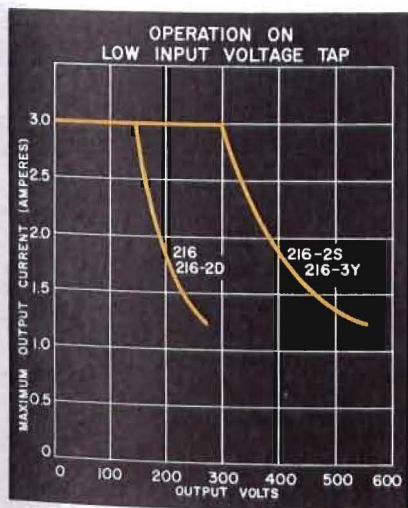


FIGURE C

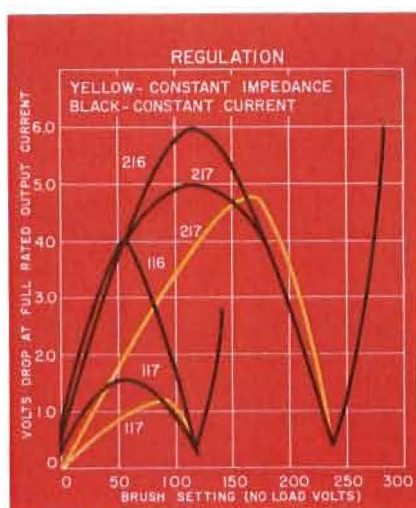


FIGURE D

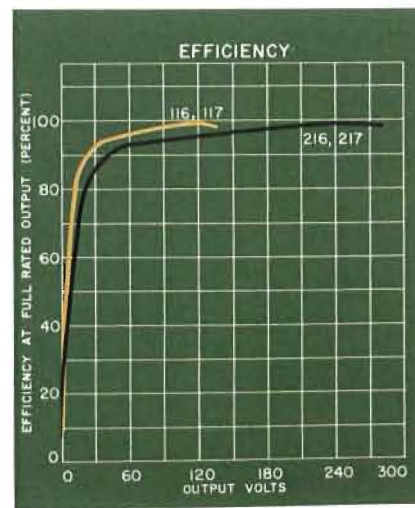


FIGURE E

PLUG-IN TYPES

All plug-in types have input cord-plug sets, output receptacles, switches and fuses and are connected for clockwise knob rotation. Those of the 116 and 216 series are connected for overvoltage output with no provision for changing in the field to limit the output voltage to line voltage. POWERSTATS ordered with an L following the last digit in the type number have the maximum output voltage limited to line voltage. For example: 3PN216L. Packaged conversion kits are available for interchanging the various input-output terminal assemblies and cord-plug sets. Types of the 117 and 217 series are connected for output voltage limited to line voltage. Coil to terminal wiring is shown in Figure I on page 25.



TYPE 3PF116

TYPES 3PF116 and 3PF216 have a polarized 3-blade plug and matching receptacle (case grounded). If desired, type 3PF216 may be ordered to operate from a 120 volt line.

TYPE 3PN116

TYPES 3PN116, 3PN117, 3PN216 and 3PN217 have a NEMA standard 3-blade plug and matching receptacle (case grounded). Type 3PN216 is for a 240 volt supply only.

TYPE 3TF116

TYPES 3TF116 and 3TF216 have a 3-blade twist-lock style plug and matching receptacle (case grounded). Type 3TF216 may be ordered to operate from a 120 volt line if desired.

TYPE 2PF117

TYPES 2PF117 and 2PF217 have standard 2-wire parallel-blade plug and matching receptacle. Tapping arrangement limits the maximum output voltage to line voltage.

OPEN CONSTRUCTION (U) TYPES

Open construction types have the same electrical ratings and coil to terminal wiring as their corresponding enclosed construction types but have no screening, fuses, line switches, terminal enclosures, input cords or output receptacles. These POWERSTATS have the shaft extending from the base end of the assembly for panel mounting. Connections are made to an open terminal board.

TYPES 116U, 117U, 216U and 217U are of round frame construction and have the same mounting hole dimensions as their corresponding enclosed construction types.

TYPES Q116U, Q117U, Q216U and Q217U are of square frame construction. They require less panel area and depth behind panel. The shaft is freely-mounted permitting its extension from the top of the assembly if desired without disturbing the brush or radiator. For military versions the letter M must be added to the type number. For example: type Q117UM.



TYPE 116U

TYPE 117U

TYPE Q116U

GANGED ASSEMBLIES

POWERSTAT types 116, 117, 216 and 217 are available in two and three gang assemblies for bench or wall mounting. They have protective screening and terminal enclosures. Two and three gang types 116U, Q116U, 117U, Q117U, 216U, Q216U, 217U and Q217U are for back-of-panel mounting only. They are supplied without screening or terminal enclosure. Terminal arrangement allows either clockwise or counterclockwise knob rotation. These POWERSTATS are provided with jumpers in standard common position. They should be moved or removed as required.

TWO GANG

TYPES 116-2, 116U-2, Q116U-2 AND Q116UM-2

When series connected on 240 volt, 50/60 cycle single phase lines, the output is 0-280 or 0-240 volts, 7.5 amperes. When open-delta connected on 120 volt, 50/60 cycle three phase lines, the output is either 0-140 or 0-120 volts, 7.5 amperes.

TYPES 117-2, 117U-2, Q117U-2 AND Q117UM-2

When series connected on 240 volt, 60 cycle single phase lines, the output is 0-240 volts, 10.0 amperes. When open-delta connected from a 120 volt, 60 cycle three phase input, the output is 0-120 volts, 10.0 amperes. For a constant impedance load the allowable output current at the maximum output voltage position is 13.0 amperes.

TYPES 216-2, 216U-2, Q216U-2 AND Q216UM-2

When series connected on 480 volt, 50/60 cycle single phase lines, the output is 0-560 or 0-480 volts, 3.0 amperes. When open-delta connected on 240 volt, 50/60 cycle three phase lines, the output is 0-280 or 0-240 volts, 3.0 amperes. These units can also be operated on 240 volt lines with an output of 0-560 volts when series connected or on 120 volt lines with an output of 0-280 volts when open-delta connected but the current cannot exceed that allowed by the curve in Figure C on page 25.

TYPES 217-2, 217U-2, Q217U-2 AND Q217UM-2

When series connected on 480 volt, 60 cycle single phase lines, the output is 0-480 volts, 4.0 amperes. When open-delta connected from a 240 volt, 60 cycle three phase input, the output is 0-240 volts, 4.0 amperes. For a constant impedance load the allowable output current at the maximum output voltage position is 6.3 amperes.

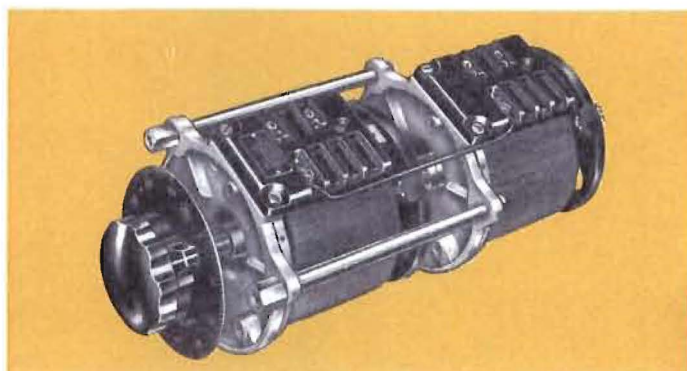
THREE GANG

TYPES 116-3, 116U-3, Q116U-3, Q116UM-3, 216-3, 216U-3, Q216U-3 AND Q216UM-3

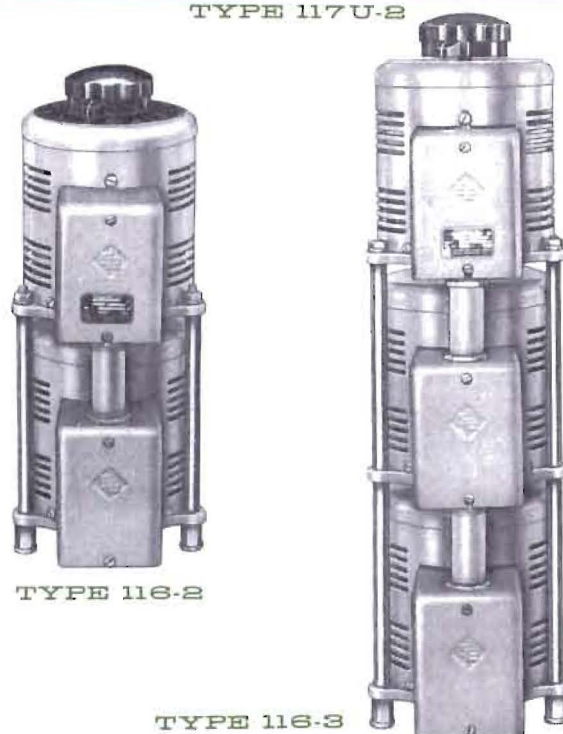
Wye connected types 116-3, 116U-3, Q116U-3 and Q116UM-3 have an output of 0-280 or 0-240 volts, 7.5 amperes from a 240 volt, 60 cycle three phase input. Types 216-3, 216U-3, Q216U-3 and Q216UM-3 deliver an output of 0-560 or 0-480 volts, 3.0 amperes from a 480 volt, 60 cycle input. These types can be operated at 50 cycles when connected so that the output does not exceed line voltage.

TYPES 117-3, 117U-3, Q117U-3, Q117UM-3, 217-3, 217U-3, Q217U-3 AND Q217UM-3

When wye connected on 240 volt, 60 cycle three phase lines, types 117-3, 117U-3, Q117U-3 and Q117UM-3 deliver an output of 0-240 volts, 10.0 amperes. Types 217-3, 217U-3, Q217U-3 and Q217UM-3 deliver an output of 0-480 volts, 4.0 amperes from 480 volt, 60 cycle three phase source. For a constant impedance load the allowable output current at the maximum output voltage position is 13.0 amperes for types 117-3, 117U-3, Q117U-3 and Q117UM-3, and 6.3 amperes for types 217-3, 217U-3, Q217U-3 and Q217UM-3.



TYPE 117U-2



TYPE 116-2

TYPE 116-3



TYPE Q116U-3

**116-117-
216-217 series**

TYPES 116, 3PF116, 3PN116, 3TF116, 117,
2PF117, 3PN117, 216, 3PF216, 3PN216,
3TF216, 217, 2PF217 and 3PN217

POWERSTAT® variable transformers



TYPES 116, 116L,
216, 216L
and 2PF217



TYPES 117
and 217



TYPE 2PF117



TYPES 3PF116, 3PF116L,
3PF216 and 3PF216L



TYPES 3TF116,
3TF116L, 3TF216
and 3TF216L



TYPES 3PN116
and 3PN116L

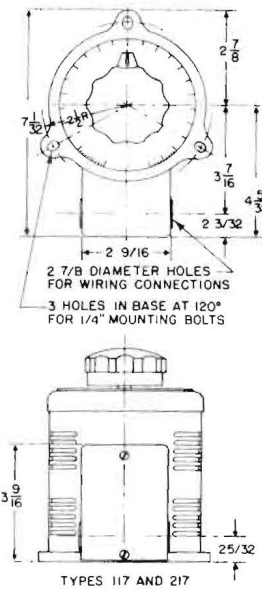
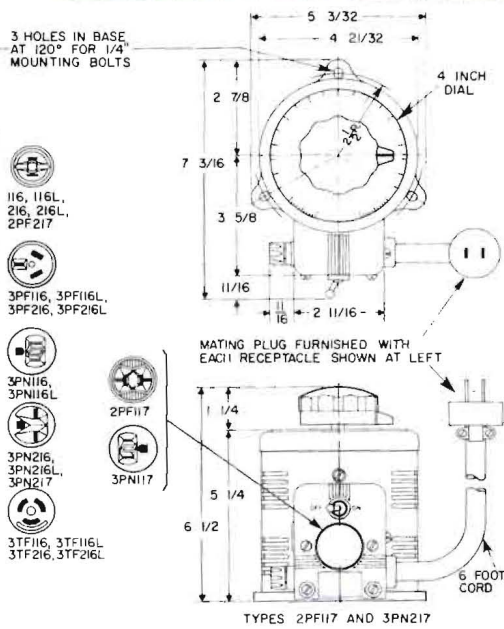
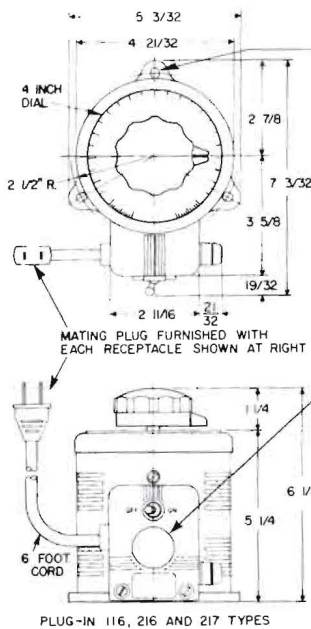


TYPES 3PN216,
3PN216L and 3PN217



TYPE 3PN117

OUTLINE DIMENSIONS

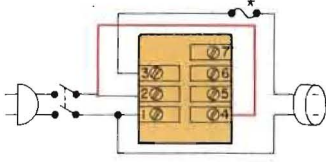
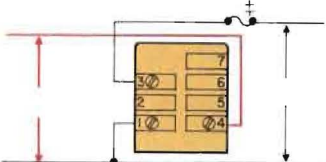
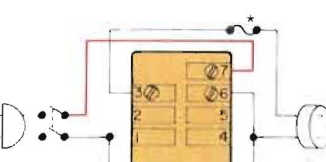
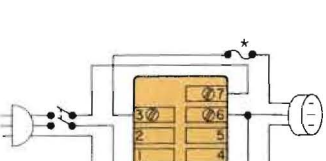



- 116, 116L, 216, 216L, 2PF217
- 3PF116, 3PF116L, 3PF216, 3PF216L
- 3PN116, 3PN116L
- 3PN216, 3PN216L, 3PN217
- 3TF116, 3TF116L, 3TF216, 3TF216L
- 2PF117
- 3PN117

F116, 117,
F216, 3PN216,
3PN217

ners

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA	
FOR BENCH OR WALL MOUNTING											
116 116L	1 Phase (CONN. #1)	**CW	120	50/60	1-2		1-3	7.5	0-140	1.0	
		CCW	120	50/60	4-5		3-4	7.5	0-140	1.0	
117	1 Phase (CONN. #2)	*CW	120	50/60	1-4		1-3	7.5	0-120	.90	
		CCW	120	50/60	1-4		3-4	7.5	0-120	.90	
2PF117	1 Phase (CONN. #3)	CW	120	60	1-4		1-3	10.0††	0-120	1.6††	
		CCW	120	60	1-4		3-4	10.0††	0-120	1.6††	
216 216L	1 Phase (CONN. #1)	CW	120	50/60	1-6			1-3	3.0‡‡	0-280	.35‡‡
		CCW	120	50/60	4-7			3-4	3.0‡‡	0-280	.35‡‡
		*CW	240	50/60	1-2	1-3		3.0	0-280	.84	
		CCW	240	50/60	4-5	3-4		3.0	0-280	.84	
		*CW	240	50/60	1-4	1-3		3.0	0-240	.72	
		CCW	240	50/60	1-4	3-4		3.0	0-240	.72	
217	1 Phase (CONN. #2)	CW	240	60	1-4		1-3	4.0††	0-240	1.5††	
		CCW	240	60	1-4		3-4	4.0††	0-240	1.5††	
2PF217	1 Phase (CONN. #3)	CW	240	60	1-4		1-3	4.0††	0-240	1.5††	
		CCW	240	60	1-4		3-4	4.0††	0-240	1.5††	
3PF116 3PN116 3TF116	1 Phase (CONN. #4)	CW	120	50/60	6-7		3-6	7.5	0-140	1.0	
3PF116L 3PN116L 3TF116L	1 Phase (CONN. #4)	§§CW	120	50/60	6-7		3-6	7.5	0-120	.90	
		CCW	120	50/60	6-7		3-7	7.5	0-120	.90	
3PN117	1 Phase (CONN. #4)	§§CW	120	60	6-7		3-6	10.0††	0-120	1.6††	
		CCW	120	60	6-7		3-7	10.0††	0-120	1.6††	
3PF216 3PN216 3TF216	1 Phase (CONN. #4)	CW	240	50/60	6-7		3-6	3.0	0-280	.84	
3PF216L 3PN216L 3TF216L	1 Phase (CONN. #4)	§§CW	240	50/60	6-7		3-6	3.0	0-240	.72	
		CCW	240	50/60	6-7		3-7	3.0	0-240	.72	
3PN217	1 Phase (CONN. #4)	§§CW	240	60	6-7		3-6	4.0††	0-240	1.5††	
		CCW	240	60	6-7		3-7	4.0††	0-240	1.5††	

FOOTNOTES

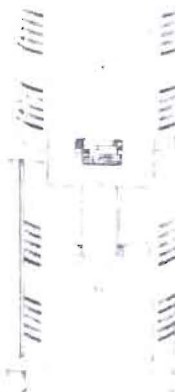
- *8 Ampere fuse supplied on 116 types, 15 ampere fuse on 117 types, 3 ampere fuse on 216 types, 6 ampere fuse on 217 types.
- **Standard wiring for Types 116 and 216.
- *Standard wiring for Types 116L and 216L.
- †Maximum output current at output voltages up to 150 volts. At higher output voltages, output current must be reduced according to rating curve figure C on page 25.
- ‡Maximum KVA at maximum output voltage, Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 25.
- §§Unit wired this way when shipped; may be converted to other ratings shown if desired.
- ‡‡15 Ampere fuse recommended for Type 117, 6 ampere fuse for Type 217 (not supplied).
- ††Current is maximum for a constant-current load, KVA is maximum for a constant-impedance load.

116-117- 216-217 series

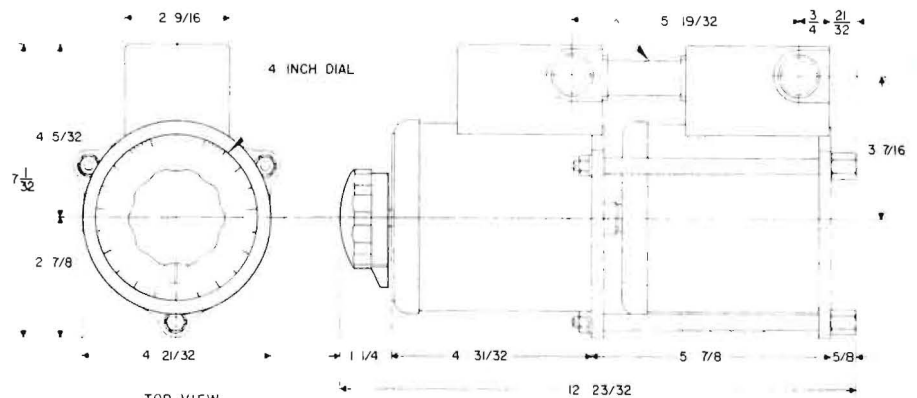
TYPES 116-2, 117-2, 216-2, 217-2,
116-3, 117-3, 216-3 and 217-3

POWERSTAT® variable transformers

TYPES 116-2, 117-2, 216-2 AND 217-2



FRONT VIEW 116-2, 117-2, 216-2 and 217-2



TYPES 116-2, 117-2,
216-2 and 217-2

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

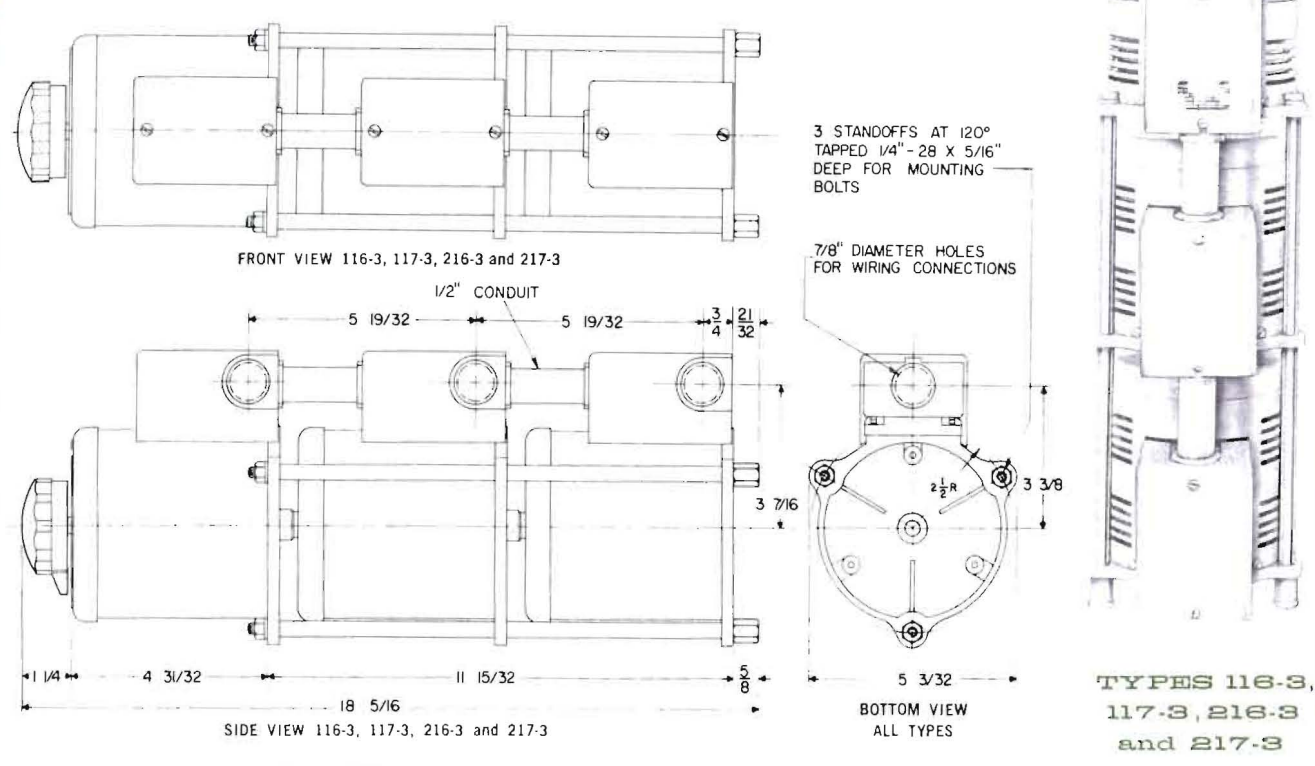
TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX AMPS.	VOLTS	MAX. KVA	
FOR BENCH OR WALL MOUNTING												
116-2	1 Phase Series	CW	240	50/60	2-2		1-1	3-3	7.5	0-280	2.1	
		CCW	240	50/60	5-5		4-4	3-3	7.5	0-280	2.1	
		CW	240	50/60	4-4		1-1	3-3	7.5	0-240	1.8	
		CCW	240	50/60	1-1		4-4	3-3	7.5	0-240	1.8	
	3 Phase Open Delta	CW	120	50/60	2-1-2		1-1	3-1-3	7.5	0-140	1.8	
		CCW	120	50/60	5-4-5		4-4	3-4-3	7.5	0-140	1.8	
117-2	1 Phase Series	CW	240	60	4-4		1-1	3-3	10.0†	0-240	3.1†	
		CCW	240	60	1-1		4-4	3-3	10.0†	0-240	3.1†	
		3 Phase Open Delta	CW	120	60		4-1-4	1-1	3-1-3	10.0†	0-120	2.7†
			CCW	120	60		1-4-1	4-4	3-4-3	10.0†	0-120	2.7†
	216-2	1 Phase Series	CW	240	50/60		6-6	1-1	3-3	3.0§	0-560	.71§§
			CCW	240	50/60		7-7	4-4	3-3	3.0§	0-560	.71§§
3 Phase Open Delta			CW	120	50/60		6-1-6	1-1	3-1-3	3.0§	0-280	.61§§
			CCW	120	50/60		7-4-7	4-4	3-4-3	3.0§	0-280	.61§§
1 Phase Series		CW	480	50/60	2-2		1-1	3-3	3.0	0-560	1.7	
		CCW	480	50/60	5-5		4-4	3-3	3.0	0-560	1.7	
217-2	1 Phase Series	CW	480	60	4-4		1-1	3-3	4.0†	0-480	3.0†	
		CCW	480	60	1-1		4-4	3-3	4.0†	0-480	3.0†	
		3 Phase Open Delta	CW	240	60		4-1-4	1-1	3-1-3	4.0†	0-240	2.6†
			CCW	240	60		1-4-1	4-4	3-4-3	4.0†	0-240	2.6†

*, †, ‡, §, §§, Refer to footnotes on page 31.

6-2, 217-2,
6-3 and 217-3

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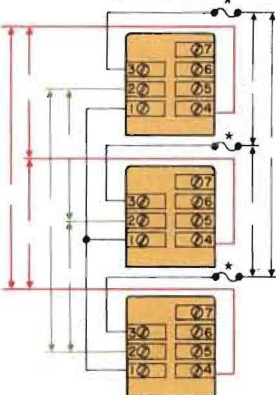
TYPES 116-3, 117-3, 216-3 AND 217-3



page
31

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS†	OUTPUT							
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA				
FOR BENCH OR WALL MOUNTING															
116-3	3 Phase Wye	CW	240	60	2-2-2		1-1-1 4-4-4	3-3-3 3-3-3	7.5 7.5	0-280 0-280	3.6 3.6				
		CCW	240	60	5-5-5							1-1-1			
		CW	240	50/60	4-4-4							1-1-1	7.5 7.5	0-240 0-240	3.1 3.1
		CCW	240	50/60	1-1-1							1-1-1	7.5 7.5	0-240 0-240	3.1 3.1
117-3	3 Phase Wye	CW	240	60	4-4-4		1-1-1 4-4-4	3-3-3 3-3-3	10.0‡ 10.0‡	0-240 0-240	5.4‡ 5.4‡				
		CCW	240	60	1-1-1		1-1-1 4-4-4	3-3-3 3-3-3	3.0‡ 3.0‡	0-560 0-560	1.2‡§ 1.2‡§				
		CW	240	60	6-6-6		1-1-1 4-4-4	3-3-3 3-3-3	3.0‡ 3.0‡	0-560 0-560	2.9 2.9				
		CCW	240	60	7-7-7		1-1-1 4-4-4	3-3-3 3-3-3	3.0‡ 3.0‡	0-560 0-560	2.9 2.9				
216-3	3 Phase Wye	CW	480	60	2-2-2		1-1-1 4-4-4	3-3-3 3-3-3	3.0 3.0	0-560 0-560	2.5 2.5				
		CCW	480	60	5-5-5		1-1-1 4-4-4	3-3-3 3-3-3	3.0 3.0	0-560 0-560	2.9 2.9				
		CW	480	50/60	4-4-4		1-1-1 4-4-4	3-3-3 3-3-3	4.0‡ 4.0‡	0-480 0-480	5.2‡ 5.2‡				
		CCW	480	50/60	1-1-1		1-1-1 4-4-4	3-3-3 3-3-3	4.0‡ 4.0‡	0-480 0-480	5.2‡ 5.2‡				
217-3	3 Phase Wye	CW	480	60	4-4-4	1-1-1 4-4-4	3-3-3 3-3-3	4.0‡ 4.0‡	0-480 0-480	5.2‡ 5.2‡					
		CCW	480	60	1-1-1	1-1-1 4-4-4	3-3-3 3-3-3	4.0‡ 4.0‡	0-480 0-480	5.2‡ 5.2‡					

CW ROTATION SHOWN

*8 Ampere fuses recommended for 116-2 and 116-3; 15 ampere fuses for 117-2 and 117-3; 3 ampere fuses for 216-2 and 216-3; 6 ampere fuses for 217-2 and 217-3.

§Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure C on page 25.

§§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 25.

‡Current is maximum for a constant-current load, KVA is maximum for a constant-impedance load.

†Jumper supplied in normal common position may be moved or removed as required.

††Common is third leg on 3-phase open delta or neutral on 3-wire single phase connections; not used on 2-wire single phase connection.

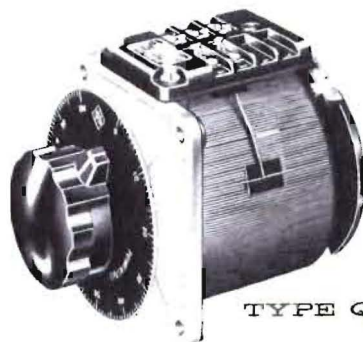
POWERSTAT® variable transformers



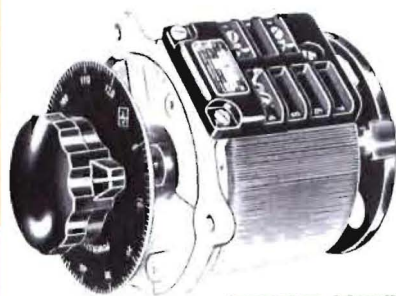
TYPE 116U

TYPES 116U, Q116U AND Q116UM

Operate from a 120 volt, 50/60 cycle, single phase input with an output of either 0-140 or 0-120 volts, 7.5 amperes.



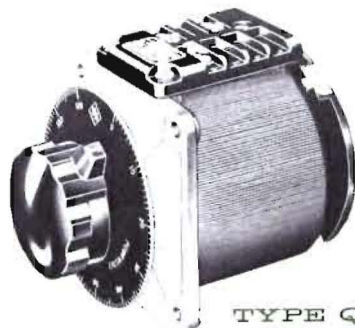
TYPE Q116U



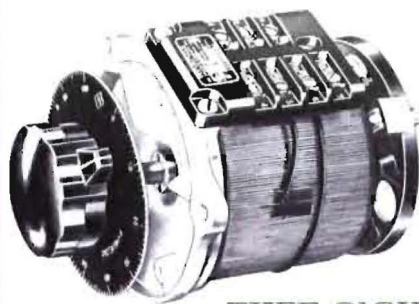
TYPE 117U

TYPES 117U, Q117U AND Q117UM

Rated for 120 volt, 60 cycle single phase input with an output of 0-120 volts, 10.0 amperes. For a constant impedance load the allowable output current at the maximum output voltage position is 13.0 amperes.



TYPE Q117U



TYPE 216U

TYPES 216U, Q216U AND Q216UM

Operate from a 240 volt, 50/60 cycle single phase input with an output of either 0-280 or 0-240 volts, 3.0 amperes. Can be operated on a 120 volt input with an output of 0-280 volts, but the output current must be decreased according to the curve in Figure C on page 25.



TYPE Q216U



TYPE 217U

TYPES 217U, Q217U AND Q217UM

Rated for 240 volt, 60 cycle single phase input with an output of 0-240 volts, 4.0 amperes. For a constant impedance load the allowable output current at the maximum output voltage position is 6.3 amperes.



TYPE Q217U

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PE Q116



TYPES Q116U, Q117U, Q216U, Q217U,
Q116UM, Q117UM, Q216UM and Q217UM

page
33

E Q216

Q217U

116-117- 216-217 series

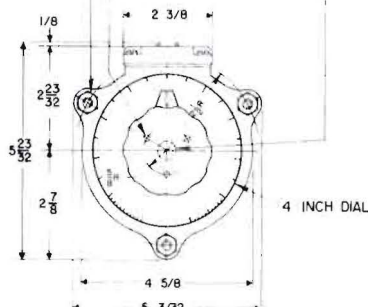
TYPES 116U-2, 117U-2, 216U-2
217U-2, 116U-3, 117U-3,
216U-3 and 217U-3

POWERSTAT® variable transformers

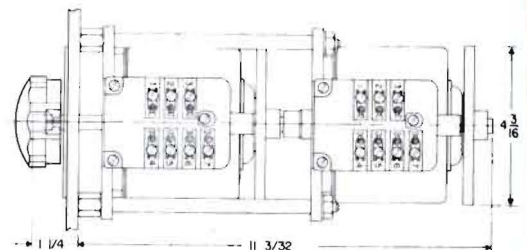
TYPES 116U-2, 117U-2, 216U-2 and 217U-2



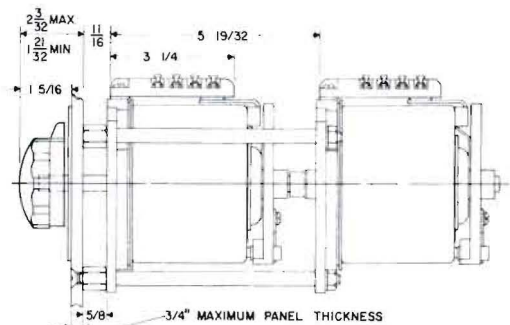
3 STANDOFFS AT 120° TAPPED
1/4"-28 X 5/16" DEEP FOR
MOUNTING SCREWS
(1/4"-28 X 1/2" FLAT HEAD
SCREWS PROVIDED FOR
MOUNTING IN PANEL UP TO
3/8" THICK)
3 HOLES IN PANEL AT 120° TAPPED
FOR 6-32 DIAL MOUNTING SCREWS
HOLE IN PANEL TO CLEAR
3/8" SHAFT



FRONT VIEW ALL TYPES



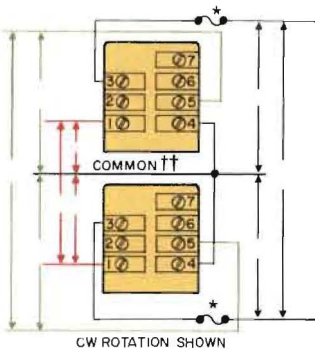
TOP VIEW
TYPES 116U-2, 117U-2,
216U-2 and 217U-2



SIDE VIEW
TYPES 116U-2, 117U-2,
216U-2 and 217U-2

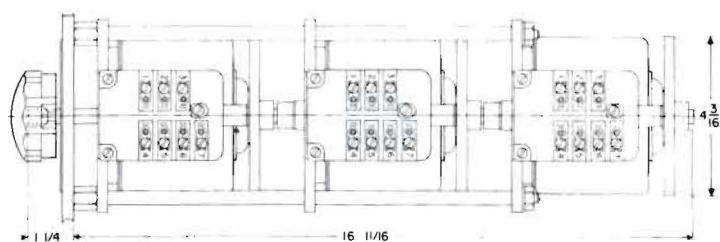
OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

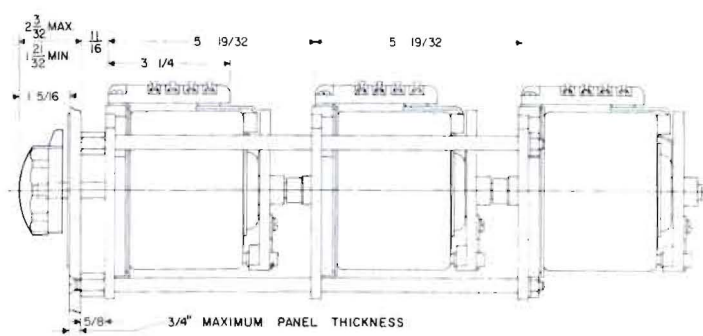
TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS†	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING											
116U-2	1 Phase Series	CW	240	50/60	5-5		4-4	3-3	7.5	0-280	2.1
		CCW	240	50/60	2-2		1-1	3-3	7.5	0-280	2.1
		CW	240	50/60	1-1		4-4	3-3	7.5	0-240	1.8
		CCW	240	50/60	4-4		1-1	3-3	7.5	0-240	1.8
117U-2	3 Phase Open Delta	CW	120	50/60	5-4-5		4-4	3-4-3	7.5	0-140	1.8
		CCW	120	50/60	2-1-2		1-1	3-1-3	7.5	0-140	1.8
		CW	120	50/60	1-4-1		4-4	3-4-3	7.5	0-120	1.6
		CCW	120	50/60	4-1-4		1-1	3-1-3	7.5	0-120	1.6
117U-2	1 Phase Series	CW	240	60	1-1		4-4	3-3	10.0†	0-240	3.1†
		CCW	240	60	4-4		1-1	3-3	10.0†	0-240	3.1†
		CW	120	60	1-4-1		4-4	3-4-3	10.0†	0-120	2.7†
		CCW	120	60	4-1-4		1-1	3-1-3	10.0†	0-120	2.7†
216U-2	1 Phase Series	CW	240	50/60	7-7		4-4	3-3	3.0‡	0-560	.71§§
		CCW	240	50/60	6-6		1-1	3-3	3.0‡	0-560	.71§§
		CW	480	50/60	5-5		4-4	3-3	3.0	0-560	1.7
		CCW	480	50/60	2-2		1-1	3-3	3.0	0-560	1.7
	3 Phase Open Delta	CW	480	50/60	1-1		4-4	3-3	3.0	0-480	1.4
		CCW	480	50/60	4-4		1-1	3-3	3.0	0-480	1.4
		CW	120	50/60	7-4-7		4-4	3-4-3	3.0‡	0-280	.61§§
		CCW	120	50/60	6-1-6		1-1	3-1-3	3.0‡	0-280	.61§§
217U-2	1 Phase Series	CW	240	50/60	5-4-5		4-4	3-4-3	3.0	0-280	1.5
		CCW	240	50/60	2-1-2		1-1	3-1-3	3.0	0-280	1.5
		CW	240	50/60	1-4-1		4-4	3-4-3	3.0	0-240	1.2
		CCW	240	50/60	4-1-4		1-1	3-1-3	3.0	0-240	1.2
	3 Phase Open Delta	CW	480	60	1-1	4-4	3-3	4.0†	0-480	3.0†	
		CCW	480	60	4-4	1-1	3-3	4.0†	0-480	3.0†	
		CW	240	60	1-4-1	4-4	3-4-3	4.0†	0-240	2.6†	
		CCW	240	60	4-1-4	1-1	3-1-3	4.0†	0-240	2.6†	

*, †, ‡, §, §§ Refer to footnotes on page 35

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TOP VIEW TYPES 116U-3, 117U-3, 216U-3 and 217U-3



SIDE VIEW TYPES 116U-3, 117U-3, 216U-3 and 217U-3



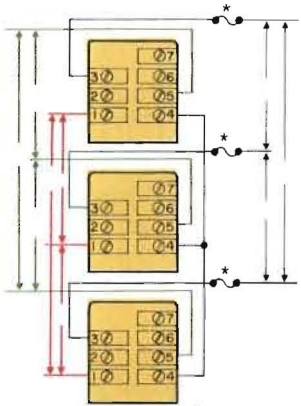
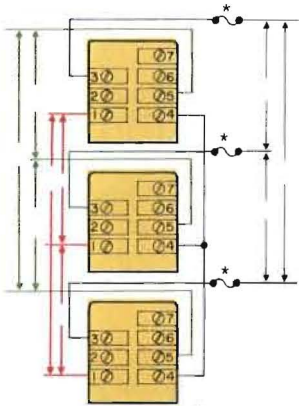
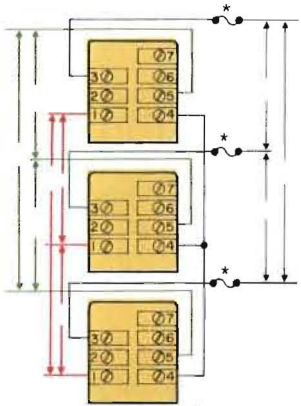
TYPE
216U-3



TYPES 117U-3
and 217U-3

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

UT		INPUT				DIAGRAM	JUMPER TERMI- NALS †	OUTPUT					
VOLTS	MAX. KVA	TYPE	CONNECTION	KNOB ROTATION	VOLTS			CYCLES	TERMI- NALS	TERMI- NALS	MAX. AMPS.	VOLTS	MAX KVA
FOR PANEL MOUNTING													
0-280 0-280 0-240 0-240	2.1 2.1 1.8 1.8	116U-3	3 Phase Wye	CW	240	60	5-5-5		4-4-4	3-3-3	7.5	0-280	3.6
				CCW	240	60	2-2-2		1-1-1	3-3-3	7.5	0-280	3.6
				CW	240	50/60	1-1-1		4-4-4	3-3-3	7.5	0-240	3.1
				CCW	240	50/60	4-4-4		1-1-1	3-3-3	7.5	0-240	3.1
0-140 0-140 0-120 0-120	1.8 1.8 1.6 1.6	117U-3	3 Phase Wye	CW	240	60	1-1-1		4-4-4	3-3-3	10.0‡	0-240	5.4‡
				CCW	240	60	4-4-4		1-1-1	3-3-3	10.0‡	0-240	5.4‡
0-240 0-240	3.1‡ 3.1‡	216U-3	3 Phase Wye	CW	240	60	7-7-7		4-4-4	3-3-3	3.0‡	0-560	1.2‡‡
				CCW	240	60	6-6-6		1-1-1	3-3-3	3.0‡	0-560	1.2‡‡
				CW	480	60	5-5-5	4-4-4	3-3-3	3.0	0-560	2.9	
				CCW	480	60	2-2-2	1-1-1	3-3-3	3.0	0-560	2.9	
0-120 0-120	2.7‡ 2.7‡			CW	480	50/60	1-1-1	4-4-4	3-3-3	3.0	0-480	2.5	
				CCW	480	50/60	4-4-4	1-1-1	3-3-3	3.0	0-480	2.5	
0-560 0-560 0-560 0-560	.71‡‡ .71‡‡ 1.7 1.7	217U-3	3 Phase Wye	CW	480	60	1-1-1		4-4-4	3-3-3	4.0‡	0-480	5.2‡
				CCW	480	60	4-4-4		1-1-1	3-3-3	4.0‡	0-480	5.2‡
0-280 0-280	.61‡‡ .61‡‡												
0-280 0-280 0-240 0-240	1.5 1.5 1.2 1.2												
0-480 0-480	3.0‡ 3.0‡												
0-240 0-240	2.6‡ 2.6‡												

FOOTNOTES

*8 Ampere fuses recommended for 116U-2 and 116U-3; 15 ampere fuses for 117U-2 and 117U-3, 3 ampere fuses for 216U-2 and 216U-3; 6 ampere fuses for 217U-2 and 217U-3. (Not supplied)

‡Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure C on page 25.

‡‡Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 25.

‡‡‡Current is maximum for a constant-current load, KVA is maximum for a constant-impedance load.

†Jumper supplied in normal common position may be moved or removed as required.

‡‡Common is third leg on 3-phase open delta or neutral on 3-wire single phase connections; not used on 2-wire single phase connection.

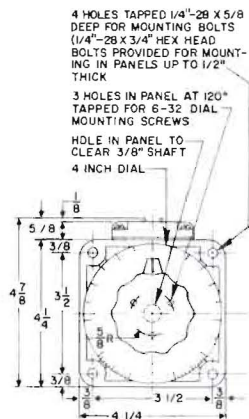
POWERSTAT® variable transformers

TYPES Q116U-2, Q116UM-2, Q117U-2,
Q117UM-2, Q216U-2, Q216UM-2,
Q217U-2 and Q217UM-2

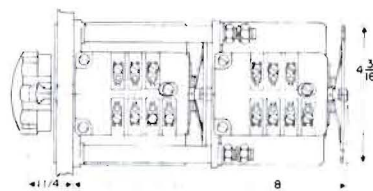


TYPE Q116U-2

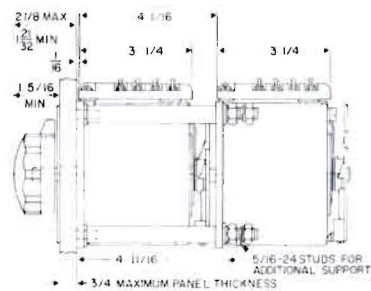
TYPE Q117U-2



FRONT VIEW ALL TYPES



TOP VIEW TYPES Q116U-2, Q116UM-2, Q117U-2,
Q117UM-2, Q216U-2, Q216UM-2,
Q217U-2 AND Q217UM-2



SIDE VIEW TYPES Q116U-2, Q116UM-2, Q117U-2,
Q117UM-2, Q216U-2, Q216UM-2,
Q217U-2 AND Q217UM-2

OUTLINE DIMENSIONS

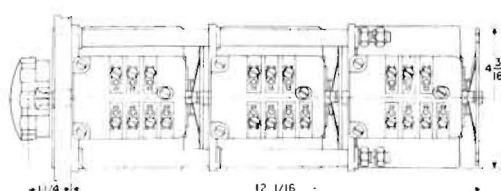
CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS†	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING											
Q116U-2 Q116UM-2	1 Phase Series	CW	240	50/60	5-5		4-4	3-3	7.5	0-280	2.1
		CCW	240	50/60	2-2		1-1	3-3	7.5	0-280	2.1
		CW	240	50/60	1-1		4-4	3-3	7.5	0-240	1.8
		CCW	240	50/60	4-4		1-1	3-3	7.5	0-240	1.8
Q117U-2 Q117UM-2	3 Phase Open Delta	CW	120	50/60	5-4-5		4-4	3-4-3	7.5	0-140	1.8
		CCW	120	50/60	2-1-2		1-1	3-1-3	7.5	0-140	1.8
		CW	120	50/60	1-4-1		4-4	3-4-3	7.5	0-120	1.6
		CCW	120	50/60	4-1-4		1-1	3-1-3	7.5	0-120	1.6
Q117U-2 Q117UM-2	1 Phase Series	CW	240	60	1-1		4-4	3-3	10.0‡	0-240	3.1‡
		CCW	240	60	4-4		1-1	3-3	10.0‡	0-240	3.1‡
	3 Phase Open Delta	CW	120	60	1-4-1		4-4	3-4-3	10.0‡	0-120	2.7‡
		CCW	120	60	4-1-4		1-1	3-1-3	10.0‡	0-120	2.7‡
Q216U-2 Q216UM-2	1 Phase Series	CW	240	50/60	7-7		4-4	3-3	3.0§	0-560	.71§§
		CCW	240	50/60	6-6		1-1	3-3	3.0§	0-560	.71§§
		CW	480	50/60	5-5		4-4	3-3	3.0	0-560	1.7
		CCW	480	50/60	2-2		1-1	3-3	3.0	0-560	1.7
	3 Phase Open Delta	CW	480	50/60	1-1		4-4	3-3	3.0	0-480	1.4
		CCW	480	50/60	4-4		1-1	3-3	3.0	0-480	1.4
	3 Phase Open Delta	CW	120	50/60	7-4-7		4-4	3-4-3	3.0§	0-280	.61§§
		CCW	120	50/60	6-1-6		1-1	3-1-3	3.0§	0-280	.61§§
Q217U-2 Q217UM-2	1 Phase Series	CW	240	50/60	5-4-5		4-4	3-4-3	3.0	0-280	1.5
		CCW	240	50/60	2-1-2		1-1	3-1-3	3.0	0-280	1.5
	3 Phase Open Delta	CW	240	50/60	1-4-1		4-4	3-4-3	3.0	0-240	1.2
		CCW	240	50/60	4-1-4		1-1	3-1-3	3.0	0-240	1.2
	1 Phase Series	CW	480	60	1-1		4-4	3-3	4.0‡	0-480	3.0‡
		CCW	480	60	4-4		1-1	3-3	4.0‡	0-480	3.0‡
	3 Phase Open Delta	CW	240	60	1-4-1		4-4	3-4-3	4.0‡	0-240	2.6‡
		CCW	240	60	4-1-4		1-1	3-1-3	4.0‡	0-240	2.6‡

*, †, ‡, §, §§ Refer to footnotes on page 37

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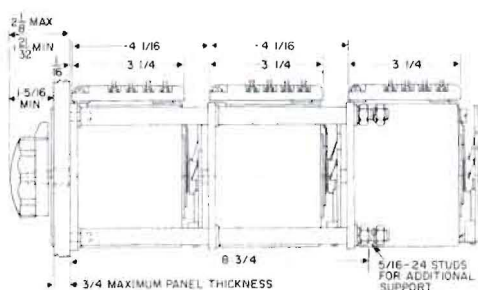
6UM-2, Q117U-2,
Q216UM-2,
IM-2



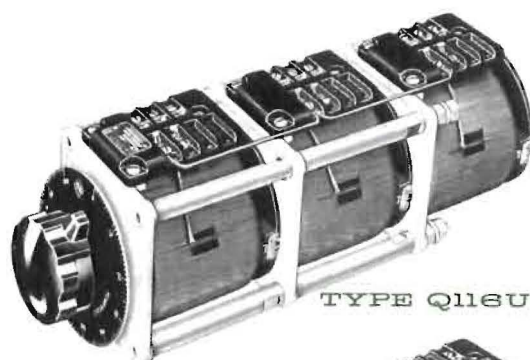
3x4 STUDS FOR ADDITIONAL SUPPORT



M-2, Q117U-2,
216UM-2,
2



M-2, Q117U-2,
216UM-2,
2



TYPE Q116U-3



TYPE Q217U-3

page
37

UT

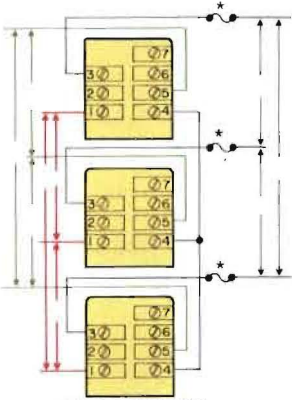
UT		INPUT					JUMPER TERMI- NALS*	OUTPUT								
VOLTS	MAX. KVA	TYPE	CONNECTION	KNOB ROTATION	VOLTS	CYCLES		TERMI- NALS	TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA				
FOR PANEL MOUNTING																
0-280	2.1	Q116U-3 Q116UM-3	3 Phase Wye	CW	240	60	5-5-5		4-4-4	3-3-3	7.5	0-280	3.6			
0-280	2.1					CCW	240		60	2-2-2		1-1-1	3-3-3	7.5	0-280	3.6
0-240	1.8					CW	240		50/60	1-1-1		4-4-4	3-3-3	7.5	0-240	3.1
0-240	1.8					CCW	240		50/60	4-4-4		1-1-1	3-3-3	7.5	0-240	3.1
0-140	1.8	Q117U-3 Q117UM-3	3 Phase Wye	CW	240	60	1-1-1			4-4-4	3-3-3	10.0†	0-240	5.4†		
0-140	1.8					CCW	240		60	4-4-4		1-1-1	3-3-3	10.0†	0-240	5.4†
0-120	1.6															
0-120	1.6															
0-240	3.1‡	Q216U-3 Q216UM-3	3 Phase Wye	CW	240	60	7-7-7			4-4-4	3-3-3	3.0‡	0-560	1.2‡§		
0-240	3.1‡					CCW	240		60	6-6-6		1-1-1	3-3-3	3.0‡	0-560	1.2‡§
0-120	2.7‡					CW	480		60	5-5-5		4-4-4	3-3-3	3.0	0-560	2.9
0-120	2.7‡					CCW	480		60	2-2-2		1-1-1	3-3-3	3.0	0-560	2.9
0-560	.71‡§	Q217U-3 Q217UM-3	3 Phase Wye	CW	480	50/60	1-1-1		4-4-4	3-3-3	3.0	0-480	2.5			
0-560	.71‡§					CCW	480	50/60	4-4-4		1-1-1	3-3-3	3.0	0-480	2.5	
0-560	1.7					CW	480	60	1-1-1		4-4-4	3-3-3	4.0†	0-480	5.2†	
0-560	1.7					CCW	480	60	4-4-4		1-1-1	3-3-3	4.0†	0-480	5.2†	
0-480	1.4															
0-480	1.4															
0-280	.61‡§															
0-280	.61‡§															
0-280	1.5															
0-280	1.5															
0-240	1.2															
0-240	1.2															
0-480	3.0‡															
0-480	3.0‡															
0-240	2.6†															
0-240	2.6†															

Diagram showing three transformer units with terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

CW ROTATION SHOWN

FOOTNOTES {

- * 8 Ampere fuses recommended for 116 types; 15 ampere fuses for 117 types; 3 ampere fuses for 216 types; 6 ampere fuses for 217 types. (Not supplied);
- ‡ Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure C on page 25.
- § Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 25
- † Current is maximum for a constant-current load. KVA is maximum for a constant-impedance load.
- ‡ Jumper supplied in normal common position may be moved or removed as required.
- † Common is third leg on 3-phase open delta or neutral on 3-wire single phase connections; not used on 2-wire single phase connection.

EN116-EN117- EN216-EN217 series

types and
characteristics

POWERSTAT® variable transformers

POWERSTATS of the 116-117-216 and 217 series are available housed in functionally formed and joined protective cases. Fabricated of cast aluminum and aluminum sheet, the cases provide a dust-tight enclosure for the **POWERSTATS**. Both operator and unit protection is assured by the lightweight, space-saving cases.



TYPES EN116, EN117,
EN216 and EN217

TYPES EN116-2, EN117-2,
EN216-2 and EN217-2

TYPES EN116-3, EN117-3,
EN216-3 and EN217-3

page
38

TYPES EN116 AND EN216 Type EN116 delivers a 0-140 volt, 6.5 ampere output from a 120 volt, 50/60 cycle single phase input. Type EN216 has a 0-280 volt, 2.6 ampere output from a 240 volt, 50/60 cycle single phase input. Tapping arrangement permits conversion to reversed knob rotation or for limiting the output voltage to line voltage if desired.

TYPES EN117 AND EN217 Type EN117 delivers an output of 0-120 volts, 8.5 amperes from a 120 volt, 60 cycle single phase source. Type EN217 has an output of 0-240 volts, 3.5 amperes from a 240 volt, 60 cycle single phase input. For a constant impedance load the allowable output current at the maximum output voltage position is 12.5 amperes for type EN117 and 5.2 amperes for type EN217. The tapping arrangement limits the maximum output voltage to the line voltage.

GANGED ASSEMBLIES Two-gang and three-gang assemblies are available for increased single phase ratings and for open-delta and wye connected three phase duty.

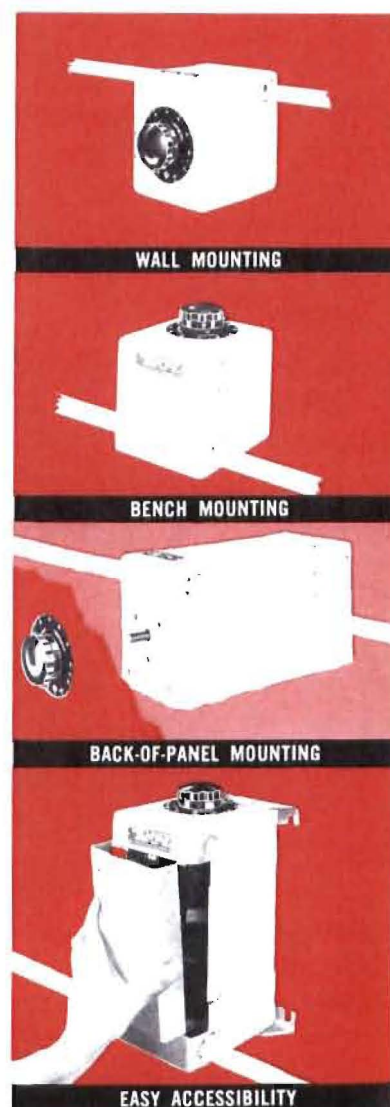
POWERSTATS of the EN type may be bench, floor, wall, front-of-panel or back-of-panel mounted. The mounting brackets furnished with all ganged assemblies also permit the **POWERSTAT** to be mounted in a variety of other positions such as the side of a machine or suspended under the top of a bench.

WALL OR FRONT-OF-PANEL MOUNTING All units can be mounted directly against the wall or panel front with the knob rotated from the front of the **POWERSTAT**. Ganged assemblies have brackets for use when mounting parallel with the mounting surface.

BENCH OR FLOOR MOUNTING All **POWERSTATS** of the EN type can be mounted directly to the bench or floor with the knob rotated from the top of the unit. Ganged assemblies have brackets for use when mounting parallel with the mounting surface.

BACK-OF-PANEL MOUNTING All units are mounted directly against the back of the panel with the knob and dial mounted at the front of the panel.

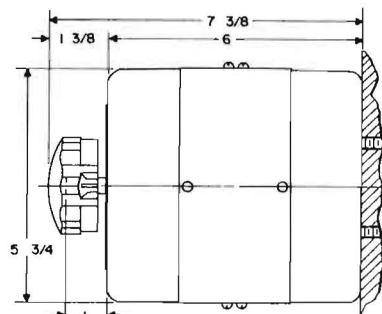
EASY INSTALLATION, QUICK INSPECTION AND SERVICE The variable transformer assembly can be easily installed or removed from its enclosure without disturbing the mounting section or conduit connections. Access to the interior components for inspection or servicing can be quickly made by removing a single cover section. Each end section is provided with a knockout on each side for connection with electrical conduit, BX or equal.



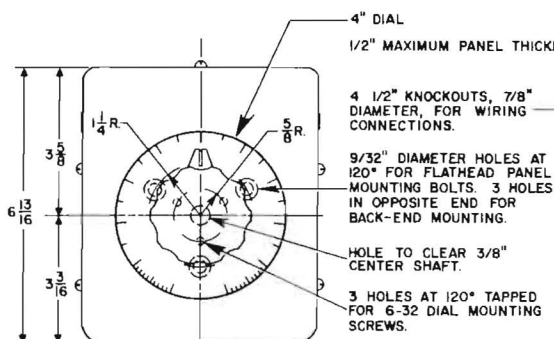


TYPES EN116, EN117,
EN216 and EN217

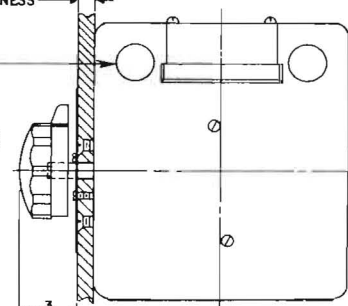
TYPES EN116, EN117, EN216 and EN217



TOP VIEW BACK-END MOUNTED



FRONT VIEW



SIDE VIEW PANEL MOUNTED

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING										
EN116	1 Phase	{	CW	120	50/60	1-2				

FOOTNOTES

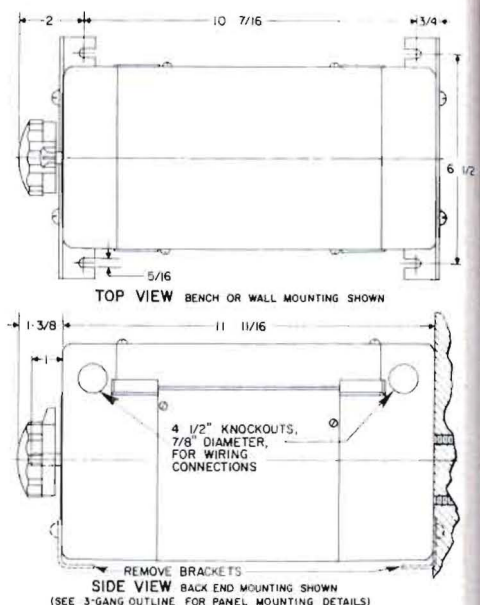
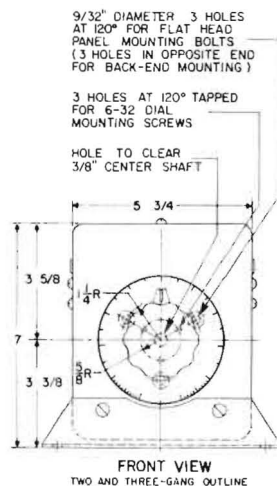
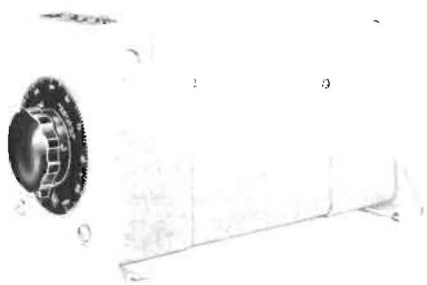
- *6 Ampere fuse recommended for Type EN116; 15 ampere fuse for Type EN117; 3 ampere fuse for Type EN216; 6 ampere fuse for Type EN217.
- †Maximum output current in output voltage range from 0 to 150 volts. At higher output voltages, output current must be reduced according to rating curve Figure C on page 25, except using 2.6 amperes as a base instead of 3.0 amperes.
- §Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure C on page 25, except using 2.6 amperes as a base instead of 3.0 amperes.
- ‡Current is maximum for a constant-current load, KVA is maximum for a constant-impedance load.

EN116-EN117- EN216-EN217 series

TYPES EN116-2, EN117-2, EN216-2,
EN217-2, EN116-3, EN117-3,
EN216-3 AND EN217-3

POWERSTAT® variable transformers

TYPES EN116-2, EN117-2, EN216-2 and EN217-2



TYPES EN116-2, EN117-2, EN216-2 and EN217-2

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

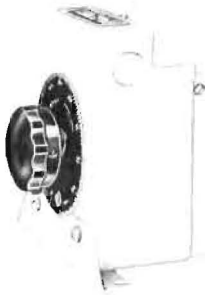
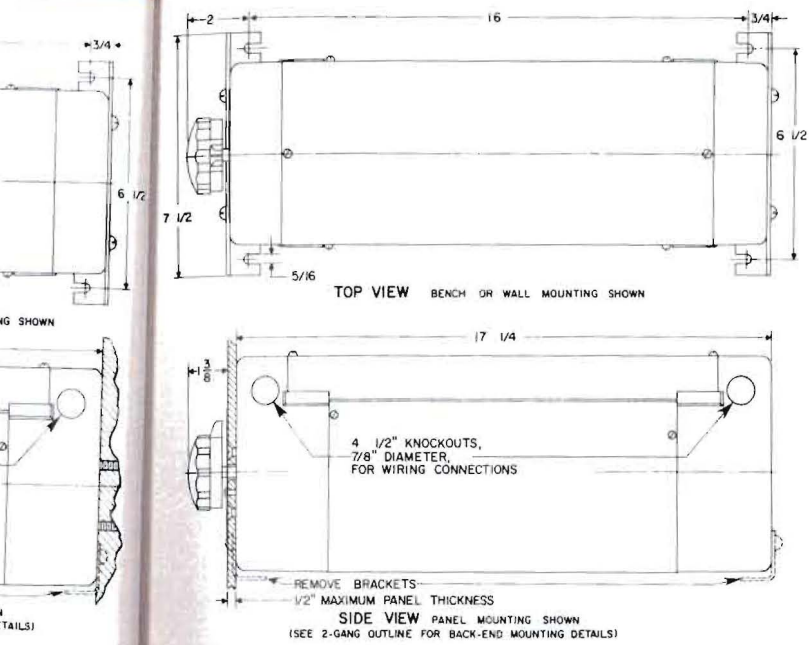
TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS †	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR BENCH OR WALL MOUNTING											
EN116-2	1 Phase Series	CW	240	50/60	2-2		1-1	3-3	6.5	0-280	1.8
		CCW	240	50/60	5-5		4-4	3-3	6.5	0-280	1.8
		CW	240	50/60	4-4		1-1	3-3	6.5	0-240	1.6
		CCW	240	50/60	1-1		4-4	3-3	6.5	0-240	1.6
EN117-2	3 Phase Open Delta	CW	120	50/60	2-1-2		1-1	3-1-3	6.5	0-140	1.6
		CCW	120	50/60	5-4-5		4-4	3-4-3	6.5	0-140	1.6
		CW	120	50/60	4-1-4		1-1	3-1-3	6.5	0-120	1.4
		CCW	120	50/60	1-4-1		4-4	3-4-3	6.5	0-120	1.4
EN117-2	1 Phase Series	CW	240	60	4-4		1-1	3-3	8.5†	0-240	3.0†
		CCW	240	60	1-1		4-4	3-3	8.5†	0-240	3.0†
	3 Phase Open Delta	CW	120	60	4-1-4		1-1	3-1-3	8.5†	0-120	2.6†
		CCW	120	60	1-4-1		4-4	3-4-3	8.5†	0-120	2.6†
EN216-2	1 Phase Series	CW	240	50/60	6-6		1-1	3-3	2.6§	0-560	.61§§
		CCW	240	50/60	7-7		4-4	3-3	2.6§	0-560	.61§§
		CW	480	50/60	2-2		1-1	3-3	2.6	0-560	1.5
		CCW	480	50/60	5-5		4-4	3-3	2.6	0-560	1.5
	3 Phase Open Delta	CW	480	50/60	4-4		1-1	3-3	2.6	0-480	1.2
		CCW	480	50/60	1-1		4-4	3-3	2.6	0-480	1.2
	3 Phase Open Delta	CW	120	50/60	6-1-6		1-1	3-1-3	2.6§	0-280	.53§§
		CCW	120	50/60	7-4-7		4-4	3-4-3	2.6§	0-280	.53§§
EN217-2	1 Phase Series	CW	240	50/60	2-1-2		1-1	3-1-3	2.6	0-280	1.3
		CCW	240	50/60	5-4-5		4-4	3-4-3	2.6	0-280	1.3
	3 Phase Open Delta	CW	240	50/60	4-1-4		1-1	3-1-3	2.6	0-240	1.1
		CCW	240	50/60	1-4-1		4-4	3-4-3	2.6	0-240	1.1
EN217-2	1 Phase Series	CW	480	60	4-4		1-1	3-3	3.5‡	0-480	2.5‡
		CCW	480	60	1-1		4-4	3-3	3.5‡	0-480	2.5‡
	3 Phase Open Delta	CW	240	60	4-1-4		1-1	3-1-3	3.5‡	0-240	2.2‡
		CCW	240	60	1-4-1		4-4	3-4-3	3.5‡	0-240	2.2‡

*, †, ‡, §, ‡, §, §, Refer to footnotes on page 41.

EN117-2, EN216-2,
EN116-3, EN117-3,
and EN217-3

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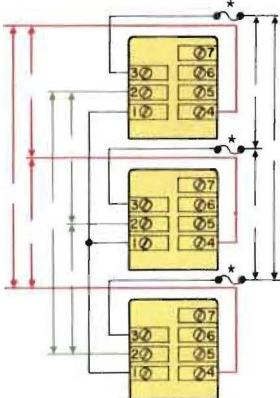
TYPES **EN116-3, EN117-3, EN216-3** and **EN217-3**



TYPES **EN116-3, EN117-3, EN216-3** and **EN217-3**

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

INPUT		TYPE	CONNECTION	KNOB ROTATION	INPUT			JUMPER TERMI- NALS†	OUTPUT			
VOLTS	CYCLES				TERMI- NALS	TERMI- NALS	MAX. AMPS.		VOLTS	MAX. KVA		
FOR PANEL MOUNTING												
0-280 0-280 0-240 0-240	1.8 1.8 1.6 1.6	EN116-3	3 Phase Wye	CW	240	60	2-2-2	1-1-1	3-3-3	6.5	0-280	3.2
				CCW	240	60	5-5-5	4-4-4	3-3-3	6.5	0-280	3.2
				CW	240	50/60	4-4-4	1-1-1	3-3-3	6.5	0-240	2.7
				CCW	240	50/60	1-1-1	4-4-4	3-3-3	6.5	0-240	2.7
0-140 0-140 0-120 0-120	1.6 1.6 1.4 1.4	EN117-3	3 Phase Wye	CW	240	60	4-4-4	1-1-1	3-3-3	8.5‡	0-240	5.2‡
				CCW	240	60	1-1-1	4-4-4	3-3-3	8.5‡	0-240	5.2‡
				CW	240	60	6-6-6	1-1-1	3-3-3	2.6§	0-560	1.1§§
				CCW	240	60	7-7-7	4-4-4	3-3-3	2.6§	0-560	1.1§§
0-120 0-120	2.6‡ 2.6‡	EN216-3	3 Phase Wye	CW	480	60	2-2-2	1-1-1	3-3-3	2.6	0-560	2.5
				CCW	480	60	5-5-5	4-4-4	3-3-3	2.6	0-560	2.5
				CW	480	50/60	4-4-4	1-1-1	3-3-3	2.6	0-480	2.2
				CCW	480	50/60	1-1-1	4-4-4	3-3-3	2.6	0-480	2.2
0-560 0-560 0-560 0-560	.61§§ .61§§ 1.5 1.5	EN217-3	3 Phase Wye	CW	480	60	4-4-4	1-1-1	3-3-3	3.5‡	0-480	4.3‡
				CCW	480	60	1-1-1	4-4-4	3-3-3	3.5‡	0-480	4.3‡
				CW	480	60	4-4-4	1-1-1	3-3-3	3.5‡	0-480	4.3‡
				CCW	480	60	1-1-1	4-4-4	3-3-3	3.5‡	0-480	4.3‡
0-280 0-280 0-280 0-280	.53§§ .53§§ 1.3 1.3	 CW ROTATION SHOWN										
0-240 0-240	1.1 1.1											
0-480 0-480	2.5‡ 2.5‡											
0-240 0-240	2.2‡ 2.2‡											

FOOTNOTES

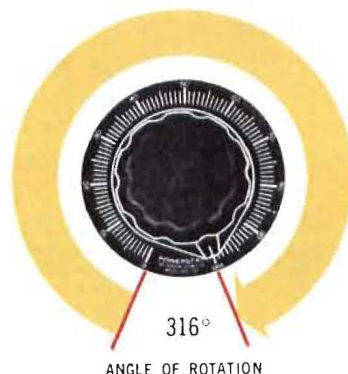
- *6 Ampere fuses recommended for EN116-2 and EN116-3; 15 ampere fuses for EN117-2 and EN117-3; 3 ampere fuses for EN216-2 and EN216-3; 6 ampere fuses for EN217-2 and EN217-3.
- §Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure C on page 25, except using 2.6 amperes as a base instead of 3.0 amperes.
- §§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 25, except using 2.6 amperes as a base instead of 3.0 amperes.
- ‡Current is maximum for a constant-current load, KVA is maximum for a constant-impedance load.
- †Jumper supplied in normal common position may be moved or removed as required.
- ††Common is third leg on 3-phase open delta or neutral on 3-wire single phase connections; not used on 2-wire single phase connection.

POWERSTAT® variable transformers

POWERSTAT variable transformers of the 136 and 236 series are offered in single and three phase assemblies for manually-operated and motor-driven duty in 120, 240 and 480 volt ratings. Except for terminal arrangement the two types are identical in external appearance and physical size

For the greatest versatility, terminal connections permit increasing output voltage with either clockwise or counter-clockwise rotation of the knob. Depending upon the terminals used, the output voltage can be limited to line voltage or to 17 per cent above line voltage. As well as providing a wider working range, this permits compensation to be made for a 14 per cent drop in line voltage. Any type in the 136 and 236 series can be operated at any frequency between 60 and 2000 cycles per second. Figure B shows the reduction in allowable output current when POWERSTATS are operated at higher than rated frequency. Figure C shows the current rating of POWERSTATS of the 236 series when operated on the lower input voltage tap. Figure D shows the regulation curves for POWERSTATS of the 136 and 236 series operating at full load current. Voltage drop is shown for any brush setting when full load is applied. For less than full load, voltage drop is proportional to the load. Figure E shows the efficiency of POWERSTATS of the 136 and 236 series at all output voltages under full load. The d-c resistance of a 136 series coil is .22 ohms and of a 236 series coil is 1.4 ohms. The maximum core and brush loss in watts when operating under no load is given in the chart.

The standard dial for POWERSTATS of the 136 and 236 series is shown in Figure A. The angle of rotation from zero to maximum output voltage is 316°. Packaged conversion kits are available which permit the various input-output terminal assemblies and cord-plug sets to be interchanged in the field. On manually-operated single units, three sets of mounting holes in a one-piece cast aluminum base permit the selection of the required mounting methods to suit existing or new layouts. The wide base flange gives added stability and allows use of lag screw mounting. Changes from bench or wall to panel mounting can be easily made because of the free-mounted shaft which can be quickly adjusted for either type mounting. Self-lubricating nylon shaft bearings provide smooth, quiet turning, more dependable service and longer life.



ANGLE OF ROTATION
FIGURE A

Type	Approximate Driving Torque (Ounce-Inches)	No-Load Loss at 60 Cycles (Watts)
136	30-50	15.0
136-2	70-90	30.0
136-3	110-140	45.0
236	30-50	15.0
236-2	70-90	30.0
236-3	110-140	45.0

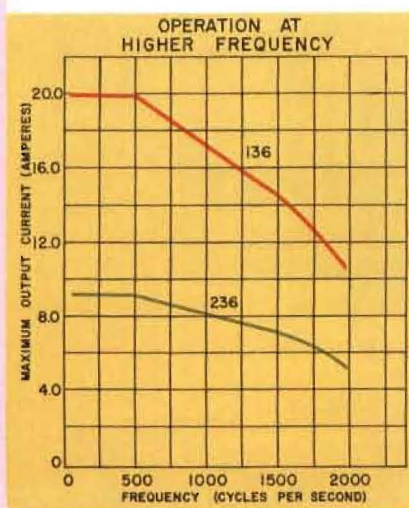


FIGURE B

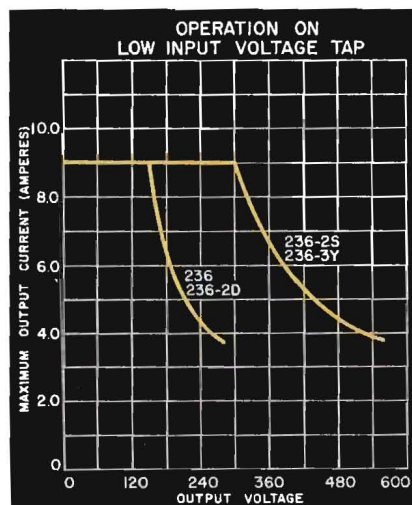


FIGURE C

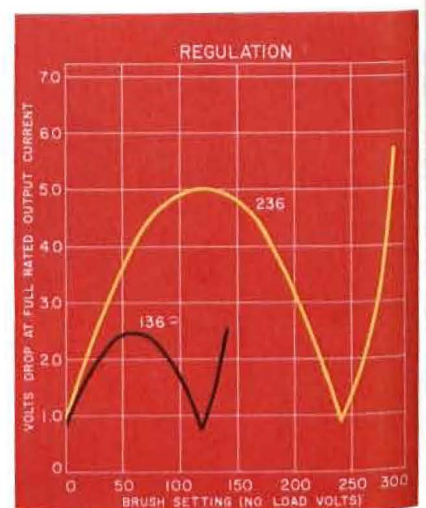


FIGURE D

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e offered in single
terminal arrange.

and 236 series is
zero to maximum
its are available
I assemblies and
On manually-oper
es in a one-piece
required mount
wide base flange
screw mounting
ng can be easily
h can be quickly
ating nylon shaft
dependable serv

TYPES 136 and 236



TYPE 136



TYPE 236

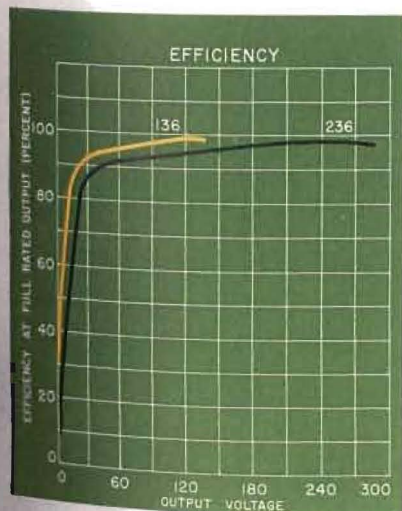


FIGURE E

These POWERSTATS are for general utility or back-of-panel mounting. They are supplied with exposed binding post type terminals which allow clip-lead, spade lug, wire clamp and wrap-around connections. The terminal arrangement permits connection so that increasing voltage can be produced with either clockwise or counterclockwise knob rotation. Both above-line and to-line output voltage terminals are provided. Type 136 delivers a 0-140 or 0-120 volt, 20 ampere output from a 120 volt, 50/60 cycle, single phase input. Type 236 delivers a 0-280 or 0-240 volt, 9.0 ampere output from a 240 volt, 50/60 cycle, single phase source. Terminals are provided on type 236 to deliver an output of 0-280 volts on a 120 volt line. The output current is reduced in accordance with the curve in Figure C. Coil to terminal wiring for POWERSTATS of the 136 and 236 series are shown in Figures F and G.

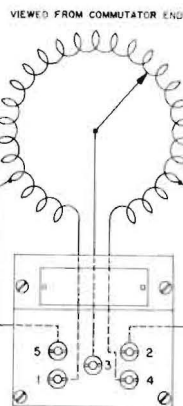


FIGURE F

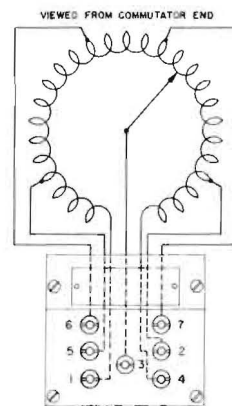


FIGURE G

MOTOR DRIVEN ASSEMBLIES OF THE 136-236 SERIES

With the exception of the POWERSTATS that have an input cord-plug set and output receptacle, all manually-operated units of the 136 and 236 series are available with motor-drives in standard speeds of 5, 15, 30 and 60 seconds for full range travel. Motor-driven POWERSTATS have the identical electrical ratings of their corresponding manually-operated types. A terminal strip in the motor enclosure provides for easy, safe motor connections. The assembly has stand-offs for bench mounting and slotted brackets for against-the-wall mounting.



TYPE 15MB136



TYPE 15MB236

POWERSTAT® variable transformers

POWERSTAT enclosed terminal types are offered in a variety of models with the same ratings as types 136 and 236 but offer the convenience of an input cord-plug and an output receptacle housed in a cast-aluminum terminal enclosure. If desired, all enclosed terminal types can be converted in the field to limit the output voltage to line voltage.

TYPES 2PF136 and 2PF236

are supplied with a parallel-blade plug and receptacle offering the protection of a clip-held cartridge type fuse.

TYPES 2TF136 and 2TF236

are supplied with 2-blade twist lock style plug and matching receptacle. They are equipped with a cartridge type fuse.

TYPES 3PF136 and 3PF236

have a polarized 3-blade (with ground) plug and matching receptacle. The third wire is solidly grounded to the POWERSTAT frame. The units are fused with a cartridge type fuse.

TYPES 3TF136 and 3TF236

are equipped with a polarized 3-blade (with ground) twist lock type plug and receptacle. The third wire is grounded to the POWERSTAT frame. Units contain a cartridge type fuse.

TYPES 3PN136 and 3PN236

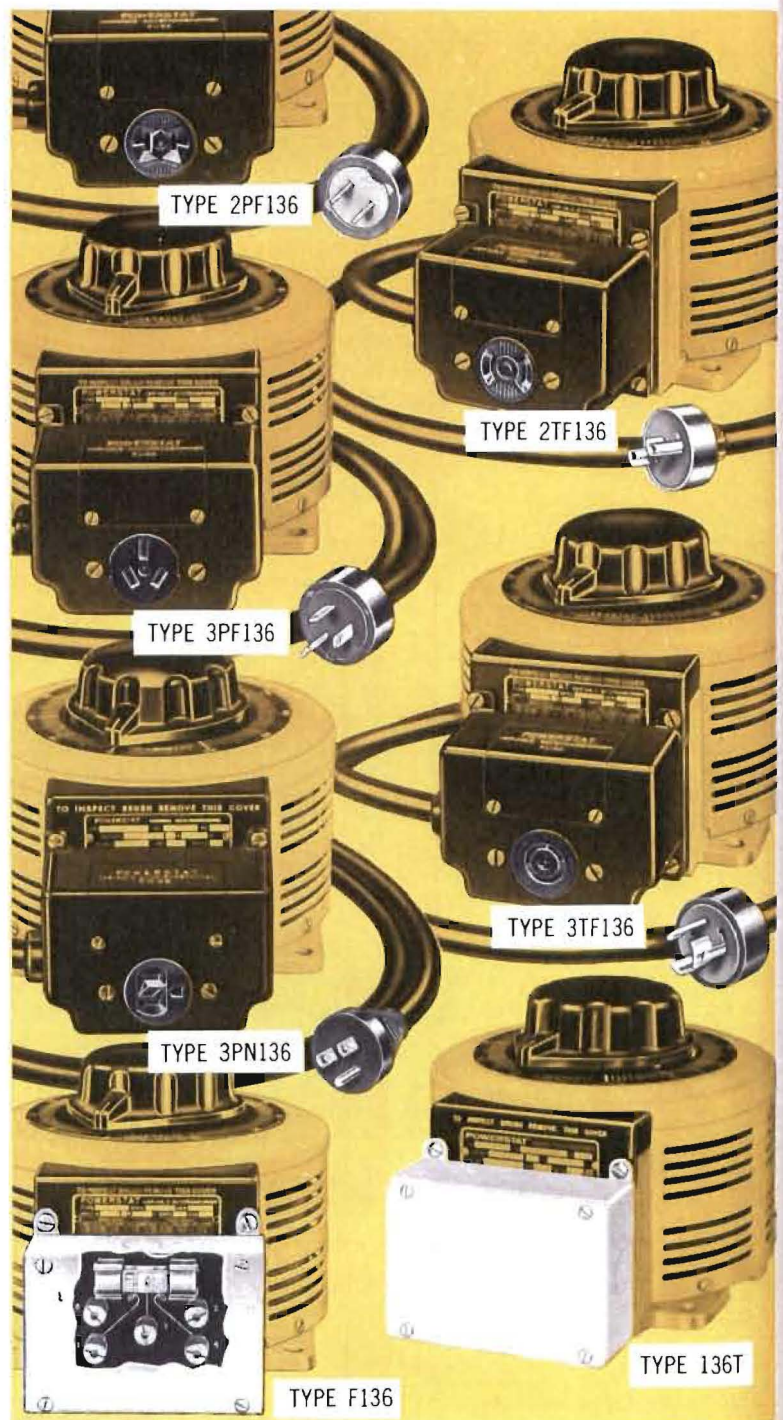
have a NEMA standard 3-blade (with ground) plug and matching receptacle. The third wire is grounded to the POWERSTAT frame. A cartridge type fuse is incorporated. Type 3PN236 does not have the 120 volt input taps.

TERMINAL ENCLOSED (T) TYPES

Types 136T, 136T-2, 136T-3, 236T, 236T-2 and 236T-3 are available with the terminal boards enclosed in metal terminal boxes. Knockouts in the terminal enclosures permit wiring with BX or equivalent.

FUSED (F) TYPES

Types F136, F136-2, F136-3, F236, F236-2 and F236-3 are available with fuses in the output brush leads and the terminal boards enclosed in metal terminal boxes. Knockouts in the terminal enclosures permit wiring with BX or equivalent. POWERSTATS of the F136 series have 20 ampere fuses and those of the F236 series have 10 ampere fuses. Types F236, F236-2, and F236-3 do not have the low voltage input tap.



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models with the
cast-aluminum
line voltage.



TYPE 136T

GANGED ASSEMBLIES

For bench, wall or panel mounting, POWERSTATS of the 136-236 series are available in two and three gang assemblies for increased single phase ratings and for three phase duty.

TWO GANG

assemblies for single phase service can be series connected to have twice the voltage rating of single units. When series connected, type 136-2 is rated 240 volts, 50, 60 cycles single phase input with an output of either 0-280 or 0-240 volts, 20 amperes. When series connected, type 236-2 is rated at 480 volts 50, 60 cycles single phase input with an output of 0-560 or 0-480 volts, 9 amperes. Type 236-2 can also be operated from a 240 volt, single phase source to deliver 0-560 volts with current reduced according to the curve in Figure C, page 42.

By parallel connecting type 136-2, it has twice the current rating of a single type 136. It delivers an output of either 0-140 or 0-120 volts, 40 amperes from a 120 volt, 50, 60 cycle source. Paralleling choke type T5000 must be ordered with the POWERSTAT if this type of connection is to be made.

Two gang assemblies can be open delta connected for three phase service. When open delta connected, POWERSTAT type 136-2 is rated 120 volts, 50, 60 cycles, three phase input to deliver a 0-140 or 0-120 volt, 20 ampere output. Type 236-2 when open delta connected is rated 240 volts, 50, 60 cycles three phase input with an output of 0-280 or 0-240 volts, 9 amperes. Type 236-2 may also be operated on 120 volt, three phase lines to deliver a 0-280 volt output but current ratings must be reduced according to the curve in Figure C, page 42.

THREE GANG

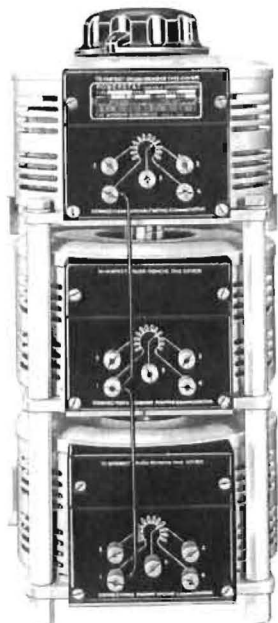
assemblies can be wye connected for three phase duty. When wye connected, POWERSTAT type 136-3 operates on a 240 volt, 60 cycle, three phase input to deliver an output of 0-280 volts, 20 amperes. The input can be either 50 or 60 cycles when connected to deliver an output of 0-240 volts, 20 amperes. Type 236-3 when wye connected is designed for 480 volt, three phase 60 cycle operation to deliver 0-560 volts, 9 amperes. For 480 volt, three phase 50, 60 cycle operation, the output is limited to 0-480 volts, 9 amperes. Type 236-3 can also be connected to deliver an output of 0-560 volts from a 240 volt, 60 cycle three phase input but the output current must be reduced according to the curve in Figure C, page 42.



TYPE 136-2



TYPE 15MB136-2



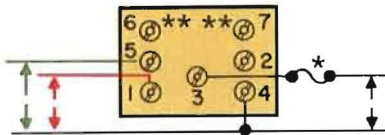

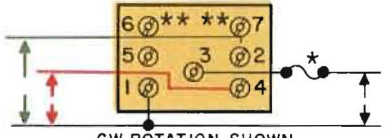
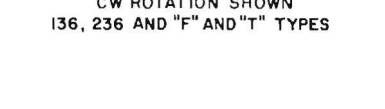
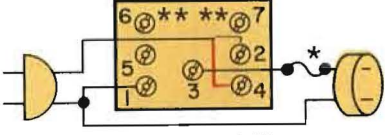
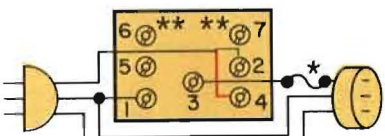
TYPE 136-3



TYPE 15MB136-3

POWERSTAT® variable transformers

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING										
136 F136 136T	1 PHASE	CW	120	50/60	4-5		3-4	20.0	0-140	2.8
		CCW	120	50/60	1-2		1-3	20.0	0-140	2.8
		CW	120	50/60	1-4		3-4	20.0	0-120	2.4
		CCW	120	50/60	1-4		1-3	20.0	0-120	2.4
236 F236 236T	1 PHASE	†CW	120	50/60	4-7		3-4	9.0†	0-280	1.1‡
		‡CCW	120	50/60	1-6		1-3	9.0†	0-280	1.1‡
		CW	240	50/60	4-5		3-4	9.0	0-280	2.5
		CCW	240	50/60	1-2		1-3	9.0	0-280	2.5
		CW	240	50/60	1-4		3-4	9.0	0-240	2.2
		CCW	240	50/60	1-4		1-3	9.0	0-240	2.2
FOR BENCH OR WALL MOUNTING										
136 MB136†† F136 MBF136†† 136T MB136T††	1 PHASE	CW	120	50/60	1-2		1-3	20.0	0-140	2.8
		CCW	120	50/60	4-5		3-4	20.0	0-140	2.8
		CW	120	50/60	1-4		1-3	20.0	0-120	2.4
		CCW	120	50/60	1-4		3-4	20.0	0-120	2.4
236 MB236†† F236 MBF236†† 236T MB236T††	1 PHASE	†CW	120	50/60	1-6		1-3	9.0†	0-280	1.1‡
		‡CCW	120	50/60	4-7		3-4	9.0†	0-280	1.1‡
		CW	240	50/60	1-2		1-3	9.0	0-280	2.5
		CCW	240	50/60	4-5		3-4	9.0	0-280	2.5
		CW	240	50/60	1-4		1-3	9.0	0-240	2.2
		CCW	240	50/60	1-4		3-4	9.0	0-240	2.2
2PF136 2TF136 3PF136 3PN136 3TF136	1 PHASE	††CW	120	50/60	1-2		1-3	20.0	0-140	2.8
		CCW	120	50/60	4-5		3-4	20.0	0-140	2.8
		CW	120	50/60	1-4		1-3	20.0	0-120	2.4
		CCW	120	50/60	1-4		3-4	20.0	0-120	2.4
2PF236 2TF236 3PF236 3PN236 3TF236	1 PHASE	†CW	120	50/60	1-6		1-3	9.0†	0-280	1.1‡
		‡CCW	120	50/60	4-7		3-4	9.0†	0-280	1.1‡
		††CW	240	50/60	1-2		1-3	9.0	0-280	2.5
		CCW	240	50/60	4-5		3-4	9.0	0-280	2.5
		CW	240	50/60	1-4		1-3	9.0	0-240	2.2
		CCW	240	50/60	1-4		3-4	9.0	0-240	2.2

FOOTNOTES

- *20.0 Ampere fuse recommended for 136 types. 10.0 ampere fuse for 236 types. Fuses supplied on F, 2PF, 2TF, 3PF, 3PN and 3TF types.
- ††Terminals 6 and 7 are not on Types F236, MBF236 or any 136 types.
- ‡Maximum output current in output voltage range from 0-150 volts. At higher output voltages, output current must be reduced according to rating curve figure C on page 42.
- †††Motor driven types have clockwise rotation only.
- §Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 42.
- †Not available on Types F236, MBF236 or 3PN236.
- ††Unit wired this way when shipped; may be converted to other ratings shown if desired.

5, MB136T,
6, 3TF136, 236,
236T, 2PF236,
F236

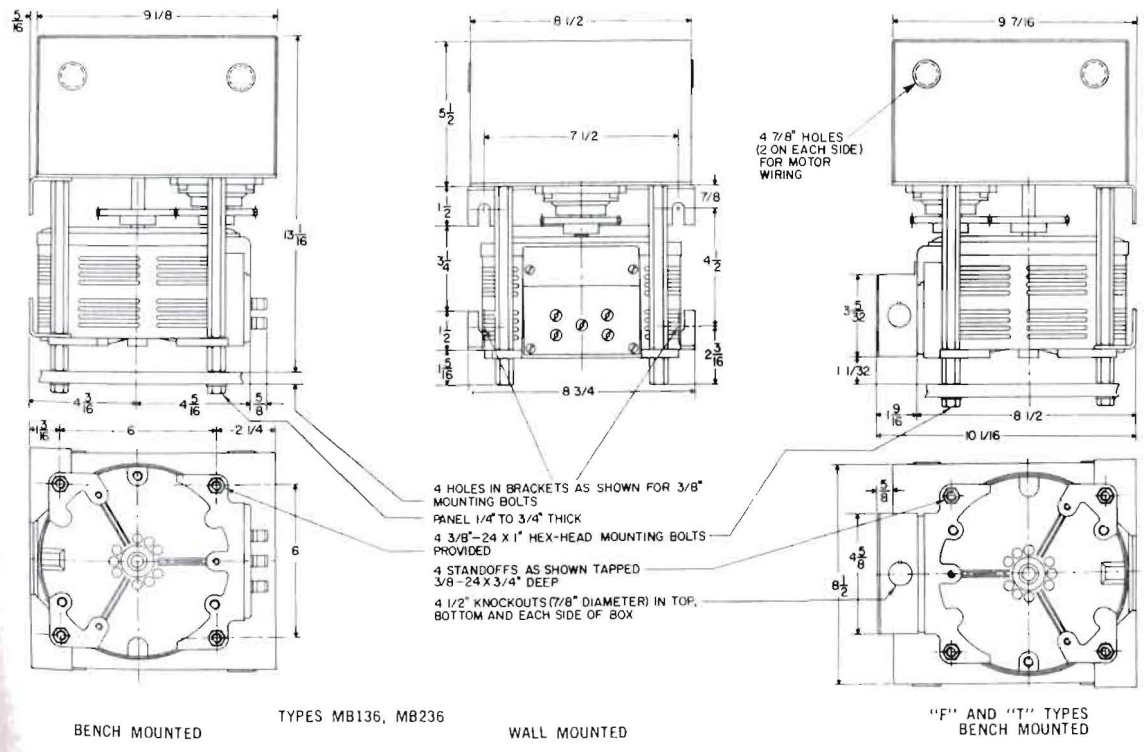
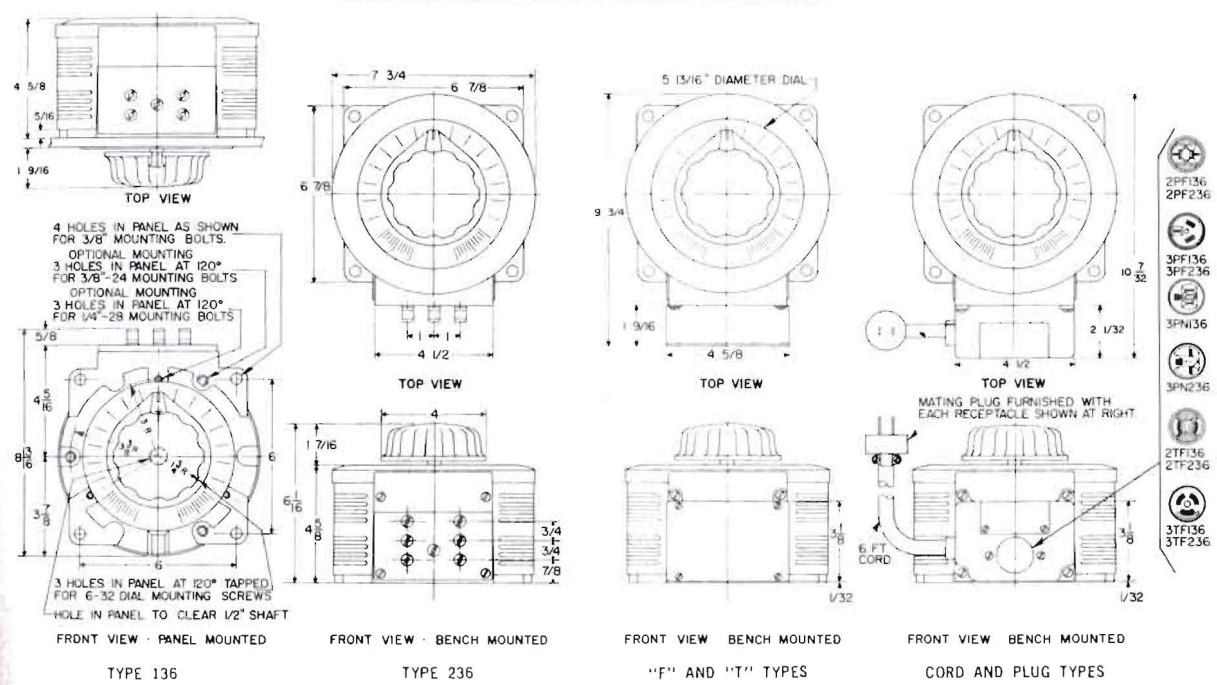
mers



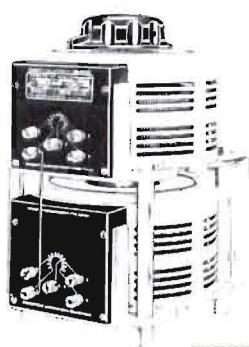
OUTPUT

VOLTS	MAX. KVA
0-140	2.8
0-140	2.8
0-120	2.4
0-120	2.4
0-280	1.1
0-280	1.1
0-280	2.5
0-280	2.5
0-240	2.2
0-240	2.2
0-140	2.8
0-140	2.8
0-120	2.4
0-120	2.4
0-280	1.1
0-280	1.1
0-280	2.5
0-280	2.5
0-240	2.2
0-240	2.2

OUTLINE DIMENSIONS



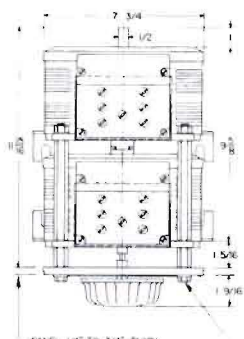
POWERSTAT® variable transformers



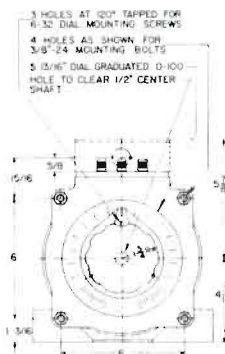
TYPE 136-2



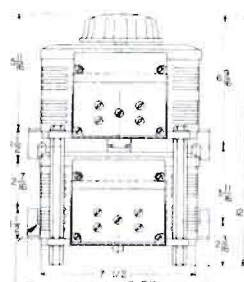
TYPE 15MB236-2



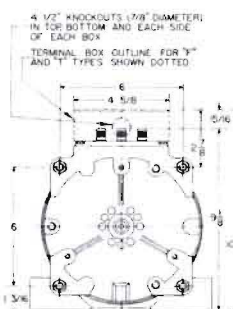
PANEL 1/4" TO 1/4" THICK
4 5/8" X 2 1/4" HEX-HEAD MOUNTING BOLTS PROVIDED



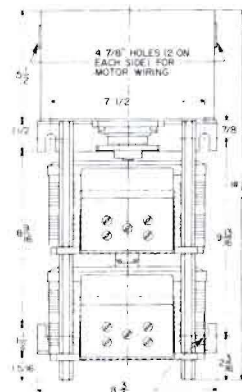
PANEL MOUNTED



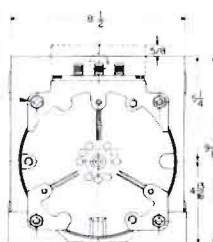
4 HOLES IN BRACKETS AS SHOWN FOR 3/8" MOUNTING BOLTS



BENCH OR WALL MOUNTED



4 HOLES IN BRACKETS AS SHOWN FOR 3/8" MOUNTING BOLTS



MOTOR DRIVEN

OUTLINE DIMENSIONS

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS:	OUTPUT					
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX AMPS.	VOLTS	MAX. KVA		
FOR PANEL MOUNTING													
136-2 F136-2 136T-2	1 PHASE PARALLEL	CW	120	50/60	4-5	 CW ROTATION SHOWN	4-4 5-5 3-3 1 (choke) 2 (choke)	C (choke)	40.0	0-140	5.6		
		CCW	120	50/60	1-2		1-1 2-2 3-3 1 (choke) 2 (choke)	C (choke)	40.0	0-140	5.6		
		CW	120	50/60	1-4		1-1 4-4 3-3 1 (choke) 2 (choke)	C (choke)	40.0	0-120	4.8		
		CCW	120	50/60	1-4		1-1 4-4 3-3 1 (choke) 2 (choke)	C (choke)	40.0	0-120	4.8		

* , † , ‡. Refer to footnotes on page 49.

6-2,
F236-2,
and MB236T-2

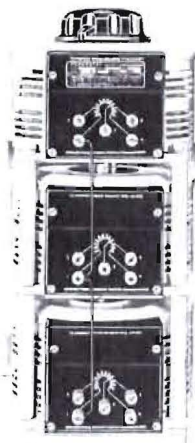
ners



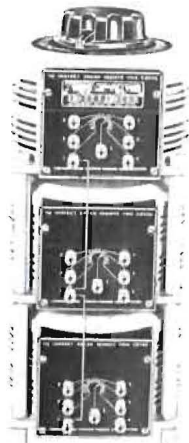
VOLTS	MAX. KVA
0-140	5.6
0-140	5.6
0-120	4.8
0-120	4.8

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS†	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR PANEL MOUNTING											
136-2 F136-2 136T-2	1 PHASE SERIES	CW	240	50/60	5-5		4-4	3-3	20.0	0-280	5.6
		CCW	240	50/60	2-2		1-1	3-3	20.0	0-280	5.6
		CW	240	50/60	1-1		4-4	3-3	20.0	0-240	4.8
		CCW	240	50/60	4-4		1-1	3-3	20.0	0-240	4.8
	3 PHASE OPEN DELTA	CW	120	50/60	5-4-5		4-4	3-4-3	20.0	0-140	4.8
		CCW	120	50/60	2-1-2		1-1	3-1-3	20.0	0-140	4.8
236-2 F236-2 236T-2	1 PHASE SERIES	±CW	240	50/60	7-7		4-4	3-3	9.0**	0-560	2.1§
		±CCW	240	50/60	6-6		1-1	3-3	9.0**	0-560	2.1§
		CW	480	50/60	5-5	4-4	3-3	9.0	0-560	5.0	
		CCW	480	50/60	2-2	1-1	3-3	9.0	0-560	5.0	
	3 PHASE OPEN DELTA	±CW	120	50/60	7-4-7	4-4	3-4-3	9.0**	0-280	1.8§	
		±CCW	120	50/60	6-1-6	1-1	3-1-3	9.0**	0-280	1.8§	
FOR BENCH OR WALL MOUNTING											
136-2 MB136-2§§ F136-2 MBF136-2§§ 136T-2 MB136T-2§§	1 PHASE†† PARALLEL	CW	120	50/60	1-2		1-1 2-2 3-3 1 (choke) 3-3 2 (choke)	1- C (choke)	40.0	0-140	5.6
		CCW	120	50/60	4-5		4-4 5-5 3-3 1 (choke) 3-3 2 (choke)	4- C (choke)	40.0	0-140	5.6
		CW	120	50/60	1-4		1-1 4-4 3-3 1 (choke) 3-3 2 (choke)	1- C (choke)	40.0	0-120	4.8
		CCW	120	50/60	1-4		1-1 4-4 3-3 1 (choke) 3-3 2 (choke)	4- C (choke)	40.0	0-120	4.8
236-2 MB236-2§§ F236-2 MBF236-2§§ 236T-2 MB236T-2§§	1 PHASE SERIES	CW	240	50/60	2-2		1-1	3-3	20.0	0-280	5.6
		CCW	240	50/60	5-5		4-4	3-3	20.0	0-280	5.6
		CW	240	50/60	4-1-4		1-1	3-3	20.0	0-240	4.8
		CCW	240	50/60	1-4-1		4-4	3-3	20.0	0-240	4.8
	3 PHASE OPEN DELTA	CW	120	50/60	2-1-2		1-1	3-1-3	20.0	0-140	4.8
		CCW	120	50/60	5-4-5		4-4	3-4-3	20.0	0-140	4.8
		CW	120	50/60	4-1-4		1-1	3-1-3	20.0	0-120	4.2
		CCW	120	50/60	1-4-1		4-4	3-4-3	20.0	0-120	4.2
	1 PHASE SERIES	±CW	240	50/60	6-6		1-1	3-3	9.0**	0-560	2.1§
		±CCW	240	50/60	7-7		4-4	3-3	9.0**	0-560	2.1§
		CW	480	50/60	2-2		1-1	3-3	9.0	0-560	5.0
		CCW	480	50/60	5-5		4-4	3-3	9.0	0-560	5.0
3 PHASE OPEN DELTA	±CW	120	50/60	6-1-6	1-1	3-1-3	9.0**	0-280	1.8§		
	±CCW	120	50/60	7-4-7	4-4	3-4-3	9.0**	0-280	1.8§		
	CW	240	50/60	2-1-2	1-1	3-1-3	9.0	0-280	4.4		
	CCW	240	50/60	5-4-5	4-4	3-4-3	9.0	0-280	4.4		
FOOTNOTES											
*20 Ampere fuses recommended (required for parallel connection) for 136 Types (provided on Types F136-2 and MBF136-2); 9 ampere fuses recommended for 236 Types (provided on Types F236-2 and MBF236-2).											
**Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve Figure C on page 42.											
†Jumper provided in standard common position should be moved or removed as required.											
‡Requires a T5000 paralleling choke connected as shown.											
§Terminals 6 and 7 not on Types F236-2, MBF236-2 or any 136 Types											
¶Common used as third leg on 3-phase open delta or as neutral on 3-wire single phase connection: not used on 2-wire single phase connection.											
§§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure C on page 42.											
§§§Motor driven types have clockwise rotation only.											
§§§§Not available on Types F236-2 and MBF236-2.											

POWERSTAT® variable transformers

TYPE 136-3



TYPE 236-3

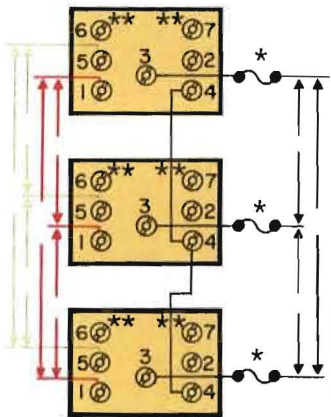


TYPE 15MB136-3



TYPE 60MB236-3

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX KVA	
FOR PANEL MOUNTING												
136-3 F136-3 136T-3	3 PHASE WYE		240	50/60	1-1-1		4-4-4	3-3-3	20.0	0-240	8.3	
		CW	240	50/60	1-1-1		1-1-1	3-3-3	20.0	0-240	8.3	
		CCW	240	50/60	4-4-4		1-1-1	3-3-3	20.0	0-240	8.3	
236-3 F236-3 236T-3	3 PHASE WYE	CW	240	60	7-7-7		4-4-4	3-3-3	9.0	0-560	3.75	
		CCW	240	60	6-6-6		1-1-1	3-3-3	9.0	0-560	3.75	
		CW	480	50/60	1-1-1		4-4-4	3-3-3	9.0	0-480	7.5	
		CCW	480	50/60	4-4-4	1-1-1	3-3-3	9.0	0-480	7.5		

CW ROTATION SHOWN

- FOOTNOTES
- *20 Ampere fuses recommended for 136 Types; 10 ampere fuses for 236 Types. Supplied only on Types F136-3, MBF136-3, F236-3 and MBF236-3.
 - **Terminals 6 and 7 are not on Types F236-3, MBF236-3 or any 136 Types.
 - †Not available on Types F236-3 and MBF236-3.
 - ‡Maximum output current at output voltage up to 300 volts. At higher output voltages, output current must be reduced according to rating curve figure C on page 42.
 - §Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure C on page 42.
 - ¶Jumpers provided on all ganged units in standard common position should be moved or removed as required.
 - ‡Motor driven types have clockwise rotation only.

5-3,
236T-3,
and MBF236-3

mers

MB236-3

PUT

VOLTS MAX.
KVA

0-280 9.7
0-280 9.7
0-240 8.3
0-240 8.3

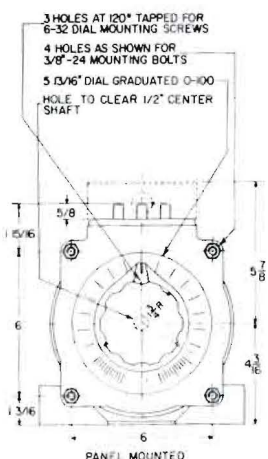
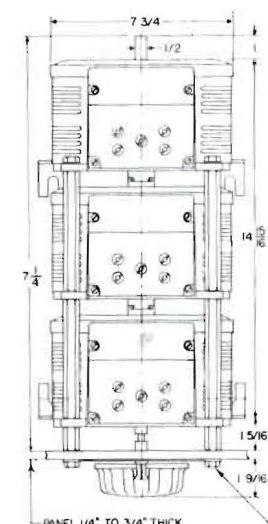
0-560 3.75
0-560 3.75
0-560 8.7
0-560 8.7
0-480 7.5
0-480 7.5

nd

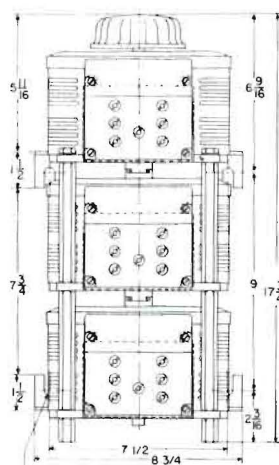
to

on

OUTLINE DIMENSIONS



PANEL MOUNTED

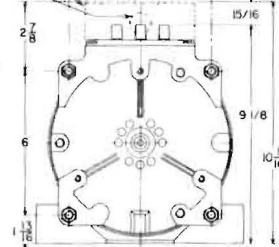


4 HOLES IN BRACKETS AS SHOWN FOR 3/8" MOUNTING BOLTS

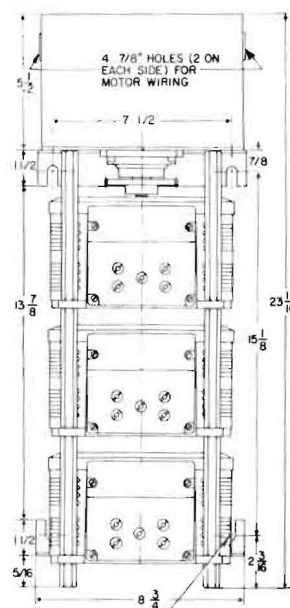
4 3/8" 24 X 1" HEX-HEAD MOUNTING BOLTS PROVIDED

4 1/2" KNOCKOUTS (7/8" DIAMETER) IN TOP, BOTTOM AND EACH SIDE OF EACH BOX

TERMINAL BOX OUTLINE FOR "F" AND "T" TYPES SHOWN DOTTED

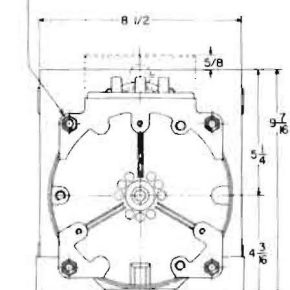


BENCH OR WALL MOUNTED



4 HOLES IN BRACKETS AS SHOWN FOR 3/8" MOUNTING BOLTS

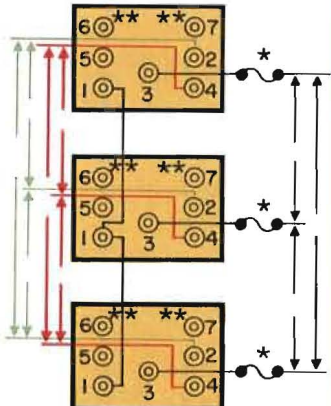
4 STANDOFFS AS SHOWN TAPPED 3/8" 24 X 3/4" DEEP



MOTOR DRIVEN

page
51

CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	JUMPER TERMI- NALS †	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
FOR BENCH OR WALL MOUNTING											
136-3 MB136-3 † F136-3 † MBF136-3 † 136T-3 † MB136T-3 †	3 PHASE WYE	CW	240	60	2-2-2		1-1-1	3-3-3	20.0	0-280	9.7
		CCW	240	60	5-5-5		4-4-4	3-3-3	20.0	0-280	9.7
		CW	240	50/60	4-4-4		1-1-1	3-3-3	20.0	0-240	8.3
		CCW	240	50/60	1-1-1		4-4-4	3-3-3	20.0	0-240	8.3
		236-3 MB236-3 † F236-3 † MBF236-3 † 236T-3 † MB236T-3 †	3 PHASE WYE	CCW	240		60	6-6-6	1-1-1	3-3-3	9.0†
CCW	240			60	7-7-7		4-4-4	3-3-3	9.0†	0-560	3.75
CW	480			60	2-2-2		1-1-1	3-3-3	9.0	0-560	8.7
CCW	480			60	5-5-5		4-4-4	3-3-3	9.0	0-560	8.7
CW	480			50/60	4-4-4		1-1-1	3-3-3	9.0	0-480	7.5
CCW	480			50/60	1-1-1		4-4-4	3-3-3	9.0	0-480	7.5

CW ROTATION SHOWN

*, **, †, ‡, § Refer to footnotes on page 50.

POWERSTAT® variable transformers

POWERSTAT variable transformers of the 1156C and 1256C series are the heavy duty units. They are available as single units or as standard ganged assemblies up to eight units in tandem. As many as twenty-four units can be ganged and mechanically and electrically interlocked for requirements up to 217 KVA. The basic types 1156C and 1256C are identical in physical size and mounting dimensions but the terminal board arrangement and electrical ratings are different. Figure C shows angle of rotation and dial. Standard POWERSTATS of the 1156C-1256C series are supplied for 120, 240 or 480 volt, single and three phase service with current ratings up to 270 amperes.

POWERSTATS of the 1156C and 1256C series can be operated at any frequency between 60 and 500 cycles. Figure D shows the reduction in allowable output current when POWERSTATS are operated at higher than rated frequency. Figure E shows the current rating of POWERSTATS of the 1256C series when operated on the lower input voltage tap. Figure F shows the regulation curves for POWERSTATS of the 1156C and 1256C series operating at full load current. Figure G shows the efficiency of POWERSTATS of the 1156C and 1256C series at all output voltages under full load. The d-c resistance of a 1156C series coil is 0.1 ohms and of a 1256C series coil is 0.35 ohms. The maximum core and brush loss in watts when operating under no load is given in the chart.

TYPE 1156C For bench or back-of-panel mounting, delivers an output of 0-140 volts, 45 amperes from a 120 volt, 50/60 cycle single phase input. To have the output limited to the input voltage type 1156CL must be ordered. Coil to terminal wiring for the 1156C series is shown in Figure A.

TYPE 1256C For bench or back-of-panel mounting. This dual-input POWERSTAT operates from a 240 volt, 50/60 cycle single phase source to deliver an output of 0-280 volts, 28.0 amperes. A 120 volt terminal is also provided to permit operation on 120 volt lines with an output of 0-280 volts. When operated on 120 volt lines, the output current must conform to the curve in Figure E. Type 1256CL has the same current ratings as type 1256C but the output voltage is limited to 0-240 volts. Coil to terminal wiring for the 1256C series is shown in Figure B.



TYPE 1156C



TYPE 1256C

VIEWED FROM KNOB END

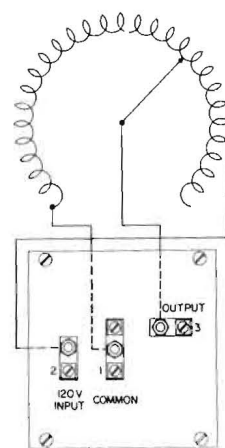


FIGURE A

VIEWED FROM KNOB END

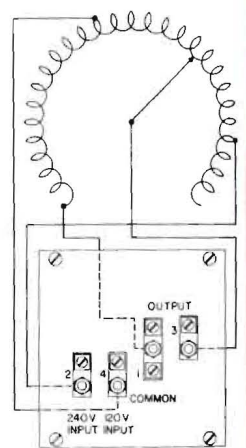


FIGURE B

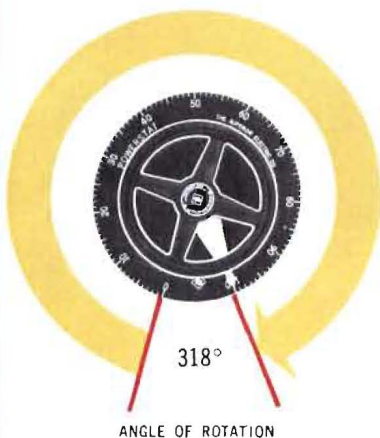


FIGURE C

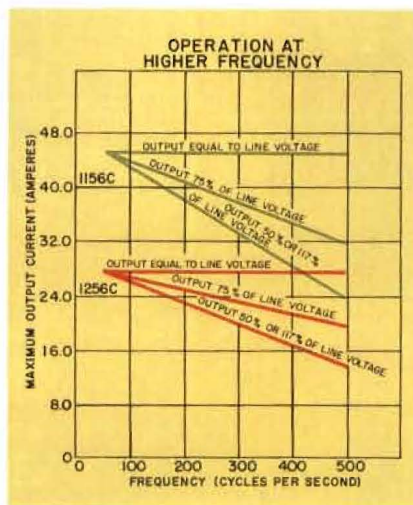


FIGURE D

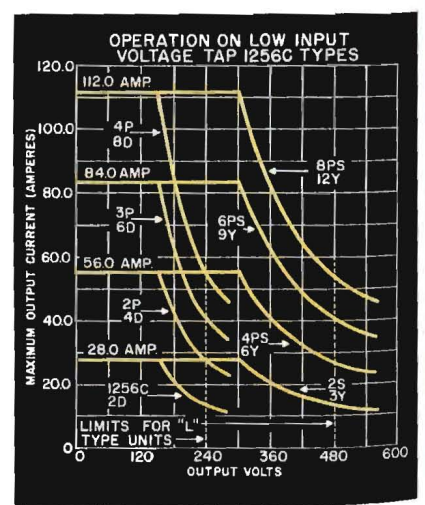


FIGURE E

s are the heavy
as twenty-four
C and 1256C are
ferent. Figure C
volt, single and

ows the reduc-
current rating of
or POWERSTATS
56C and 1256C
ies coil is 0.35

FROM KNOB END

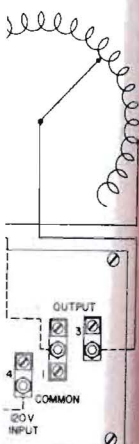
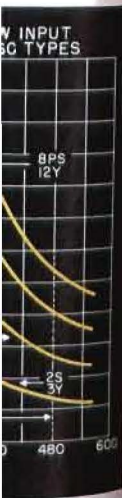


FIGURE B



MOTOR-DRIVEN TYPES

ALL POWERSTATS of the 1156C and 1256C series are available as motor-driven assemblies. Standard speeds for full range travel are: 5, 15, 30 or 60 seconds for single units, two gang and three gang assemblies; 15, 30 or 60 seconds for four and six gang assemblies; 30 or 60 seconds for eight, nine and twelve gang assemblies; and 60 seconds for sixteen, eighteen and twenty-four gang assemblies.

GANGED ASSEMBLIES

POWERSTATS of the 1156C and 1256C series are available in 2, 3, 4, 6, 8, 9, 12, 16, 18 and 24 gang assemblies for manual or motor-driven duty. All can be bench or floor-mounted. Single units and two and three gang manually-operated assemblies can be wall or back-of-panel mounted. Additional support should be provided for ganged assemblies. The 8, 9, 12, 16, 18 and 24 gang assemblies are available as standard types only with motor-drive.

TERMINAL ENCLOSED (T) TYPES

Both manually-operated and motor-driven types 1156CT, 1156CT-2D, 1156CT-2S, 1156CT-3Y, 1256CT, 1256CT-2D, 1256CT-2S and 1256CT-3Y are available with the terminal board enclosed in a metal terminal box. Knockouts in the terminal enclosure permit wiring with BX or equivalent.



FUSED (F) TYPES

Both manually-operated and motor-driven types F1156C, F1156C-2D, F1156C-2S, F1156C-3Y, F1256C, F1256C-2D, F1256C-2S and F1256C-3Y are available with a fuse in the output brush lead and the terminal board enclosed in a metal terminal box. Knockouts in the terminal enclosures permit wiring with BX or equivalent. POWERSTATS of the F1156C series have 45 ampere fuses and those of the F1256C series have 30 ampere fuses. Type F1256C does not have the lower voltage terminal for 120 volt operation.

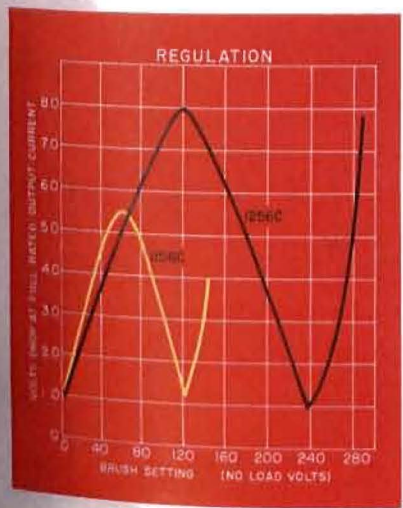


FIGURE F

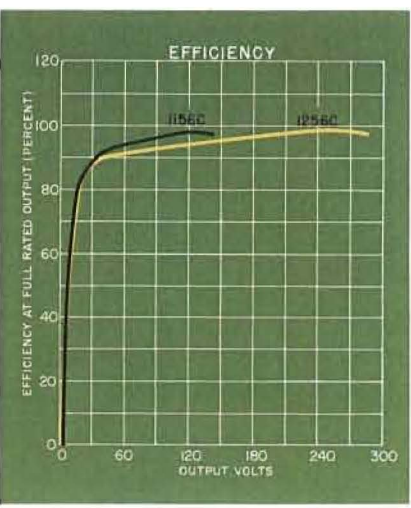


FIGURE G



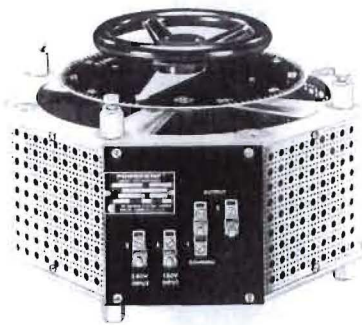
TYPE 5M1256C

TYPE	Approximate Driving Torque (Ounce-Inches)	No-Load Loss at 60 Cycles (Watts)
1156C	200-250	40.0
1156C-2 (P,S,D)	400-500	80.0
1156C-3 (P,Y)	600-750	120.0
1156C-4 (P,PS,D)	800-1000	160.0
1156C-6 (P,PS,D,Y)	1200-1400	240.0
1156C-8 (PS,D)	Motor-driven	320.0
1156C-9Y	Motor-driven	360.0
1156C-12 (PS,D,Y)	Motor-driven	480.0
1156C-18Y	Motor-driven	720.0
1256C	200-250	40.0
1256C-2 (P,S,D)	400-500	80.0
1256C-3 (P,Y)	600-750	120.0
1256C-4 (P,PS,D)	800-1000	160.0
1256C-6 (P,PS,D,Y)	1200-1400	240.0
1256C-8 (P,PS,D)	Motor-driven	320.0
1256C-9Y	Motor-driven	360.0
1256C-12 (PS,D,Y)	Motor-driven	480.0
1256C-16 (PS,D)	Motor-driven	640.0
1256C-18Y	Motor-driven	720.0
1256C-24Y	Motor-driven	960.0

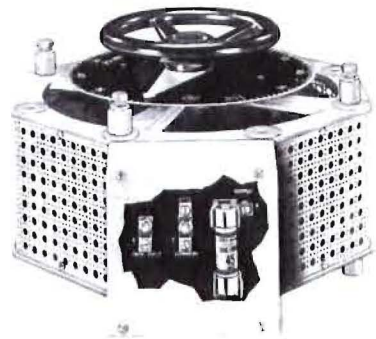
POWERSTAT® variable transformers



TYPE 1156C

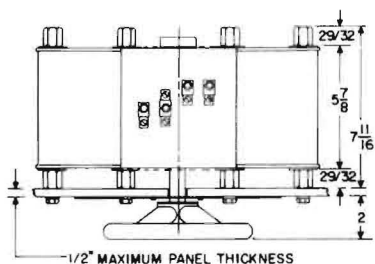


TYPE 1256C

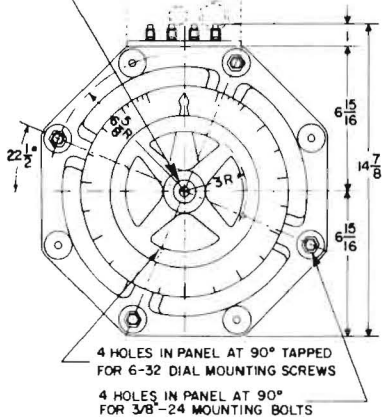


TYPE F1156C

OUTLINE DIMENSIONS

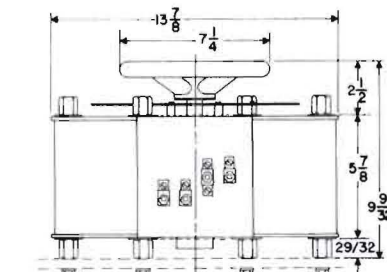


1/2" MAXIMUM PANEL THICKNESS
HOLE IN PANEL TO CLEAR
3/4" CENTER SHAFT

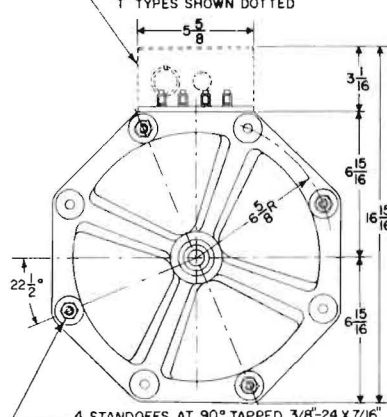


4 HOLES IN PANEL AT 90° TAPPED
FOR 6-32 DIAL MOUNTING SCREWS
4 HOLES IN PANEL AT 90°
FOR 3/8"-24 MOUNTING BOLTS

PANEL MOUNTED

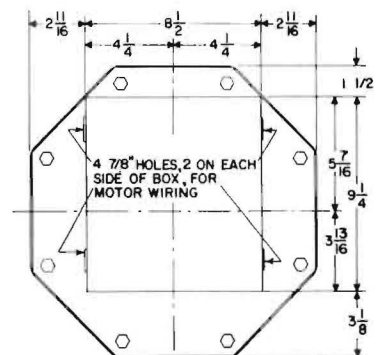


4 3/8"-24 X 3/4" MOUNTING
BOLTS PROVIDED
TERMINAL BOX FOR "F" AND
"Y" TYPES SHOWN DOTTED

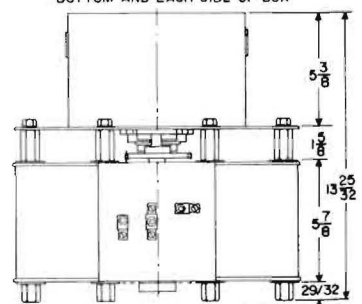


4 STANDOFFS AT 90° TAPPED 3/8"-24 X 7/16"
DEEP FOR MOUNTING BOLTS

BENCH OR WALL MOUNTED



1/2" AND 3/4" X 1" KNOCKOUTS ON TOP,
BOTTOM AND EACH SIDE OF BOX



FOR MOUNTING, SEE MANUALLY OPERATED UNIT

MOTOR DRIVEN

156C, 1156CT,
1256C,
CT
mers



TYPE 1156CT



TYPE F1256C

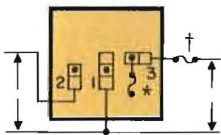
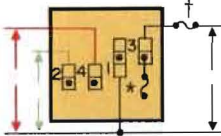
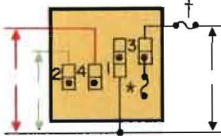


TYPE 5M1156C



TYPE 5M1256C

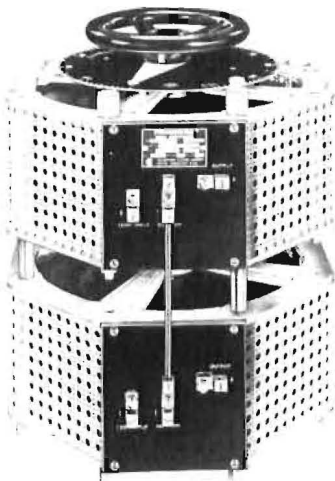
CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT			
			VOLTS	CYCLES	TERMI- NALS		TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
1156C M1156C F1156C MF1156C 1156CT M1156CT	SINGLE PHASE	CW	120	50/60	1-2		1-3	45.0	0-140	6.3
1156CL M1156CL§ F1156CL MF1156CL§ 1156CLT M1156CLT§							1-3	45.0	0-120	5.4
							2-3	45.0	0-120	5.4
F1256C MF1256C	SINGLE PHASE	CW	240	50/60	1-2		1-3	28.0	0-280	7.8
F1256CL MF1256CL§		CW	240	50/60	1-2		1-3	28.0	0-240	6.7
		CCW	240	50/60	1-2		2-3	28.0	0-240	6.7
1256C M1256C 1256CT M1256CT	SINGLE PHASE	CW	240	50/60	1-2		1-3	28.0	0-280	7.8
		CW	120	50/60	1-4		1-3	28.0†	0-280	3.3††
1256CL M1256CL§ 1256CLT M1256CLT§	SINGLE PHASE	CW	240	50/50	1-2		1-3	28.0	0-240	6.7
		CCW	240	50/50	1-2		2-3	28.0	0-240	6.7
		CW	120	50/60	1-4		1-3	28.0†	0-240	3.2††
		CCW	120	50/60	2-4		2-3	28.0†	0-240	3.2††

FOOTNOTES

*Fuses supplied on "F" type units: 45 ampere on 1156C types, 30 ampere on 1256C types.
†Fuses recommended for all except "F" type units: 45 ampere for 1156C types, 30 ampere for 1256C types.
§Motor driven types have CW rotation only.
‡Maximum output current at output voltages up to 150 volts. At higher output voltages, output current must be reduced according to rating curve figure E on page 52.
††Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure E on page 52.

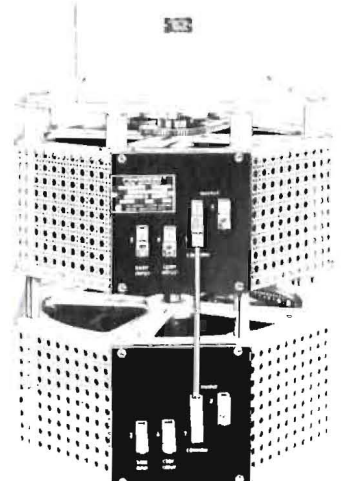
POWERSTAT® variable transformers



TYPE 1156C-2S

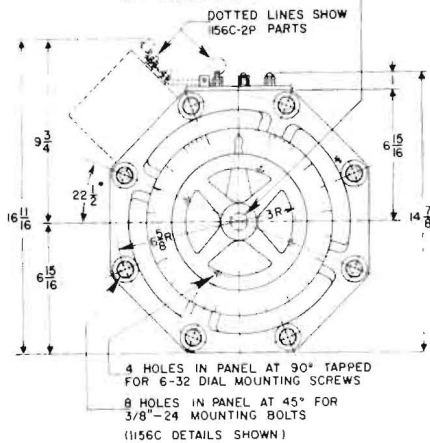
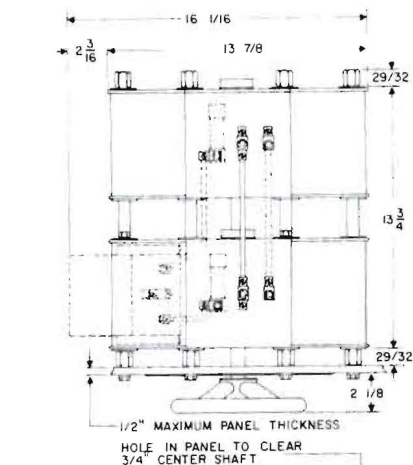


TYPE 1256C-2P

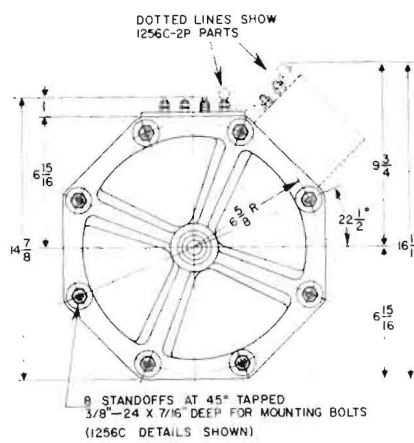
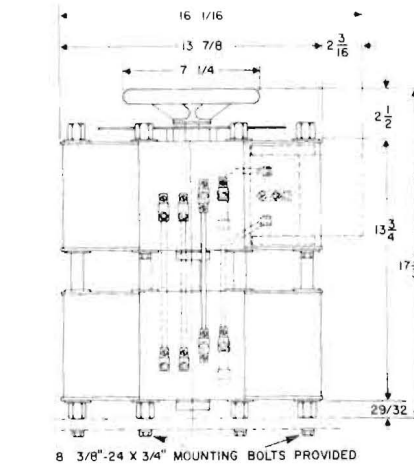


TYPE 15M1256C-2S

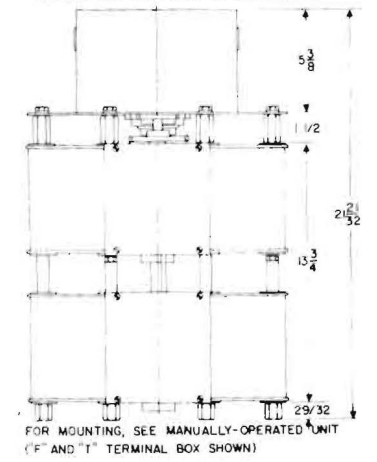
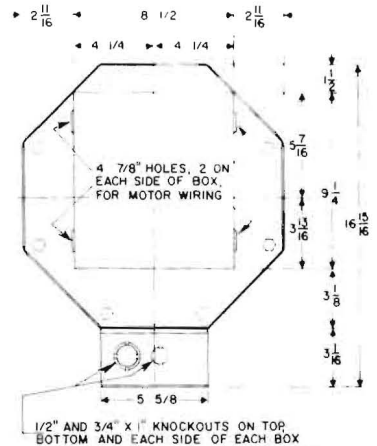
OUTLINE DIMENSIONS



PANEL MOUNTED



BENCH OR WALL MOUNTED



MOTOR DRIVEN

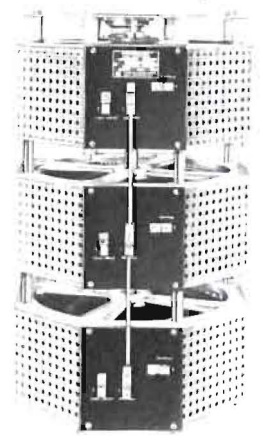
CONNECTIONS AND RATINGS

TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS		TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA	
1156C-2P M1156C-2P	1 PHASE PARALLEL (CONN #1)	CW	120	50/60	1-2	 CW ROTATION SHOWN CONNECTION #1	1-C (choke)	90.0	0-140	12.6	
1156CL-2P M1156CL-2P ^s		120	50/60	1-2	1-C (choke)		90.0	0-120	10.8		
	CCW	120	50/60	1-2	2-C (choke)		90.0	0-120	10.8		
1256C-2P M1256C-2P	1 PHASE PARALLEL (CONN #2)	CW	240	50/60	1-2		1-C (choke)	56.0	0-280	15.7	
		CCW	120	50/60	1-4	1-C (choke)	56.0†	0-280	6.6††		
1256CL-2P M1256CL-2P ^s	1 PHASE PARALLEL (CONN #2)	CW	240	50/60	1-2	1-C (choke)	56.0	0-240	13.4		
		CCW	240	50/60	1-2	2-C (choke)	56.0	0-240	13.4		
		CCW	120	50/60	1-4	1-C (choke)	56.0†	0-240	6.5††		
		CCW	120	50/60	2-4	2-C (choke)	56.0†	0-240	6.5††		
1156C-2S M1156C-2S F1156C-2S MF1156C-2S 1156CT-2S M1156CT-2S	1 PHASE SERIES (CONN #3)	CW	240	50/60	2-2	 CW ROTATION SHOWN CONNECTION #2	JUMPER TERMI- NALS	OUTPUT TERMI- NALS			
1156CL-2S M1156CL-2S ^s F1156CL-2S MF1156CL-2S ^s 1156CLT-2S M1156CLT-2S ^s		1-1	3-3	45.0	0-280		12.6				
	CW	240	50/60	2-2	1-1		3-3	45.0	0-240	10.8	
	CCW	240	50/60	1-1	2-2		3-3	45.0	0-240	10.8	
1156C-2D M1156C-2D F1156C-2D MF1156C-2D 1156CT-2D M1156CT-2D	3 PHASE OPEN DELTA (CONN #3)	CW	120	50/60	2-1-2	 CW ROTATION SHOWN CONNECTION #3	1-1	3-1-3	45.0	0-140	10.9
1156CL-2D M1156CL-2D ^s F1156CL-2D MF1156CL-2D ^s 1156CLT-2D M1156CLT-2D ^s		1-1	3-1-3	45.0	0-120		9.4				
	CW	120	50/60	2-1-2	1-1		3-3	28.0	0-560	15.7	
	CCW	120	50/60	1-2-1	1-1		3-3	28.0†	0-560	6.6††	
1256C-2S M1256C-2S F1256C-2S MF1256C-2S 1256CT-2S M1256CT-2S	1 PHASE SERIES (CONN #4)	CW	480	50/60	2-2	 CW ROTATION SHOWN CONNECTION #4	1-1	3-3	28.0	0-480	13.4
1256CL-2S M1256CL-2S ^s F1256CL-2S MF1256CL-2S ^s 1256CLT-2S M1256CLT-2S ^s		2-2	3-2-3	45.0	0-120		9.4				
	CW	240	50/60	4-4	1-1		3-3	28.0†	0-480	6.5††	
	CCW	240	50/60	4-4	2-2		3-3	28.0†	0-480	6.5††	
1256C-2D M1256C-2D F1256C-2D MF1256C-2D 1256CT-2D M1256CT-2D	3 PHASE OPEN DELTA (CONN #4)	CW	240	50/60	2-1-2	 CW ROTATION SHOWN CONNECTION #4	1-1	3-1-3	28.0	0-280	13.6
1256CL-2D M1256CL-2D ^s F1256CL-2D MF1256CL-2D ^s 1256CLT-2D M1256CLT-2D ^s		1-1	3-1-3	28.0	0-280		5.7††				
	CW	120	50/60	4-1-4	1-1		3-1-3	28.0†	0-240	5.6††	
	CCW	120	50/60	4-2-4	2-2		3-2-3	28.0†	0-240	5.6††	

FOOTNOTES

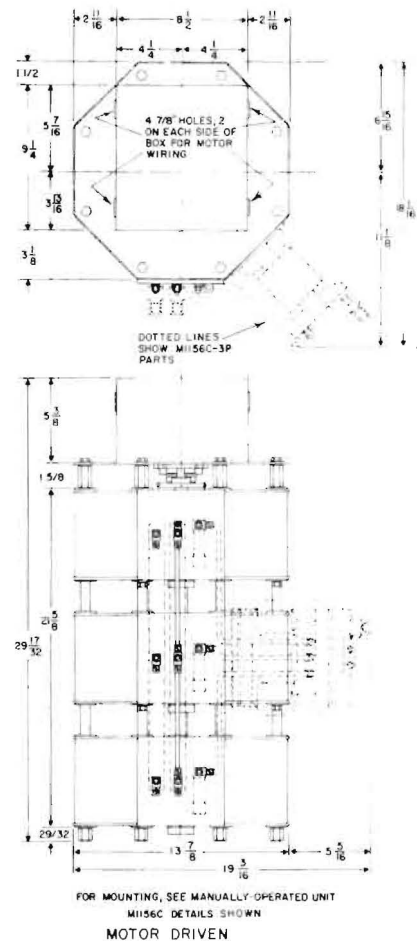
- *Fuses supplied on "F" and "P" Type units: 45 ampere on 1156C Types, 30 ampere on 1256C Types.
- **Common is used as third leg on 3-phase open delta or neutral on 3-wire single phase connection, not used on 2-wire single phase connection.
- †Jumpers provided in standard common position should be moved or removed as required.
- ‡Fuses recommended for all except "F" Type units: 45 ampere for 1156C types, 30 ampere for 1256C Types.
- §Motor driven Types have CW rotation only.
- ||Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure E on page 52.
- ††Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure E on page 52.

TYP



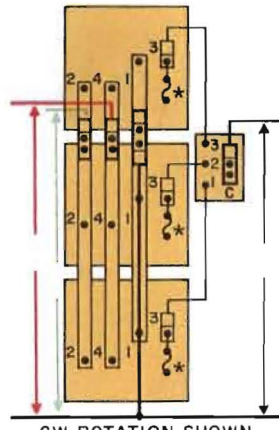
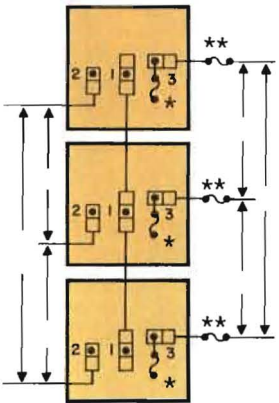
TYPE 15M1158C.3Y

125
M125



11
M11
F11
MF1
1
M1
1
M1
F1
MF1
1
M1

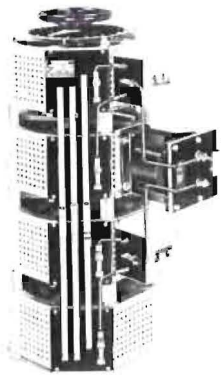


TYPE	CONNECTION	KNOB ROTATION	INPUT			DIAGRAM	OUTPUT				
			VOLTS	CYCLES	TERMI- NALS		TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA	
1156C-3P M1156C-3P	{ 1 PHASE PARALLEL	CW	120	50/60	1-2		1-C (Choke)	135.0	0-140	18.9	
1156CL-3P M1156CL-3P§		CW	120	50/60	1-2		1-C (Choke)	135.0	0-120	16.7	
		CCW	120	50/60	1-2		2-C (Choke)	135.0	0-120	16.7	
1256C-3P M1256C-3P	{ 1 PHASE PARALLEL	CW	240	50/60	1-2		1-C (Choke)	84.0	0-280	21.5	
		CW	120	50/60	1-4		1-C (Choke)	84.0†	0-280	9.9††	
		CW	240	50/60	1-2		1-C (Choke)	84.0	0-240	20.2	
		CCW	240	50/60	1-2		2-C (Choke)	84.0	0-240	20.2	
1256CL-3P M1256CL-3P§	{ 1 PHASE PARALLEL	CW	120	50/60	1-4		1-C (Choke)	84.0†	0-240	9.7††	
		CCW	120	50/60	2-4		2-C (Choke)	84.0†	0-240	9.7††	
CW ROTATION SHOWN ±4 bus bar omitted on 1156C types											
1156C-3Y M1156C-3Y F1156C-3Y MF1156C-3Y 1156CT-3Y M1156CT-3Y	{ 3 PHASE WYE	CW	240	60	2-2-2		JUMPER TERMI- NALS †	OUTPUT TERMI- NALS	45.0	0-280	21.8
							1-1-1	3-3-3			
1156CL-3Y M1156CL-3Y§ F1156CL-3Y MF1156CL-3Y§ 1156CLT-3Y M1156CLT-3Y§	{ 3 PHASE WYE	CW	240	50/60	2-2-2		1-1-1	3-3-3	45.0	0-240	18.7
		CCW	240	50/60	1-1-1		2-2-2	3-3-3	45.0	0-240	18.7
1256C-3Y M1256C-3Y F1256C-3Y MF1256C-3Y 1256CT-3Y M1256CT-3Y	{ 3 PHASE WYE	CW	240	60	4-4-4		1-1-1	3-3-3	28.0†	0-560	11.4††
			CCW	240	60		4-4-4	2-2-2	3-3-3	28.0†	0-560
1256CL-3Y M1256CL-3Y§ F1256CL-3Y MF1256CL-3Y§ 1256CLT-3Y M1256CLT-3Y§	{ 3 PHASE WYE	CW	240	50/60	4-4-4		1-1-1	3-3-3	28.0†	0-480	11.2††
		CCW	240	50/60	4-4-4		2-2-2	3-3-3	28.0†	0-480	11.2††
								1-1-1	3-3-3	28.0†	0-480
CW ROTATION SHOWN											

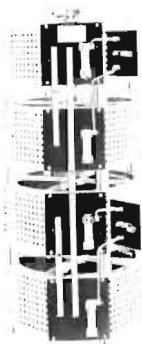
FOOTNOTES

- *Fuses supplied on "F" and "P" type units: 45 ampere on 1156C types, 30 ampere on 1256C types.
- **Fuses recommended for all except "F" type units: 45 ampere for 1156C types, 30 ampere for 1256C types
- §Motor driven units have CW rotation only.
- †Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve figure E on page 52.
- ††Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure E on page 52.
- ‡Jumpers provided on standard common position should be moved or removed as required.

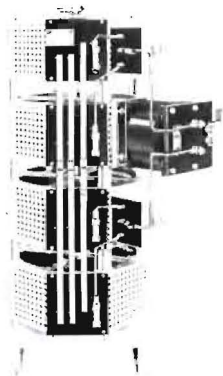
POWERSTAT® variable transformers



TYPE 1256C-4P

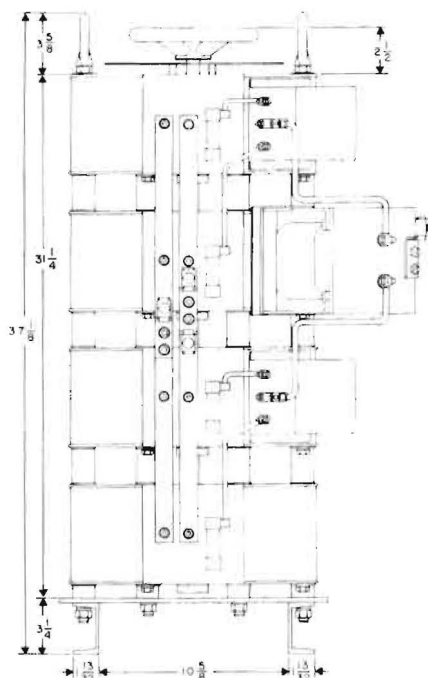
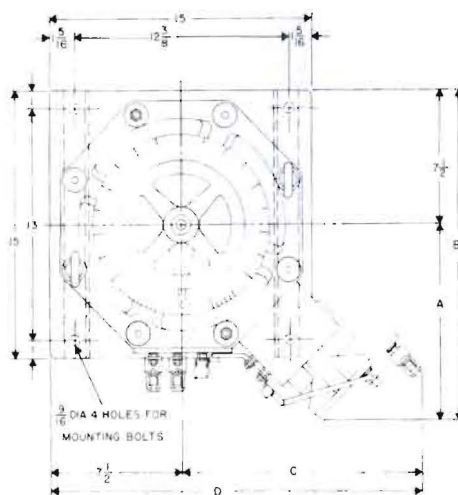


TYPE 15M1156C-4D

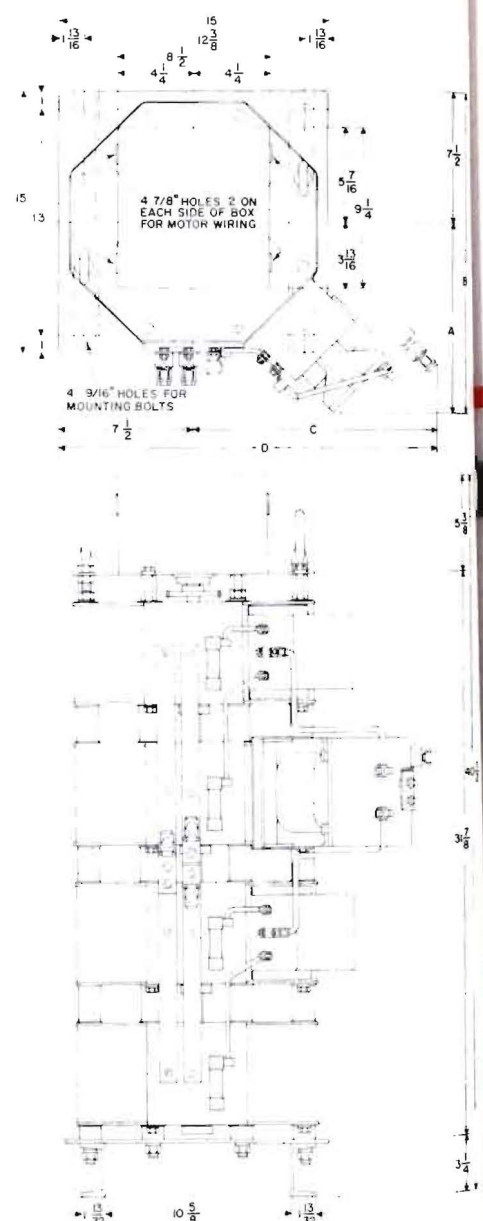


TYPE 15M1256C-4P

OUTLINE DIMENSIONS



1156C-4P DETAILS SHOWN



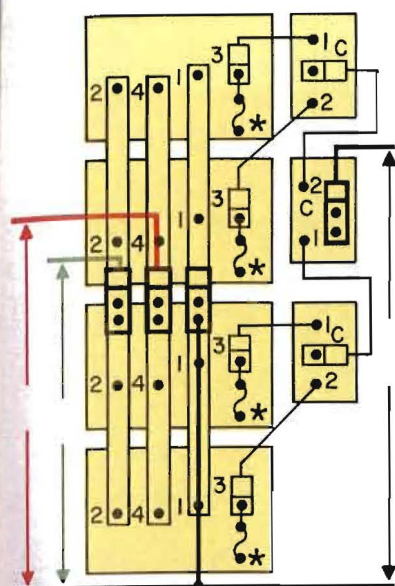
1156C-4P DETAILS SHOWN

	A	B	C	D
1156C-4P	10 15/16	18 7/16	13 11/16	21 3/16
1256C-4P	9 3/4	17 1/4	9 1/8	16 5/8

P, 1256C-4P,
PS, 1256C-4PS,
D and 1256C-4

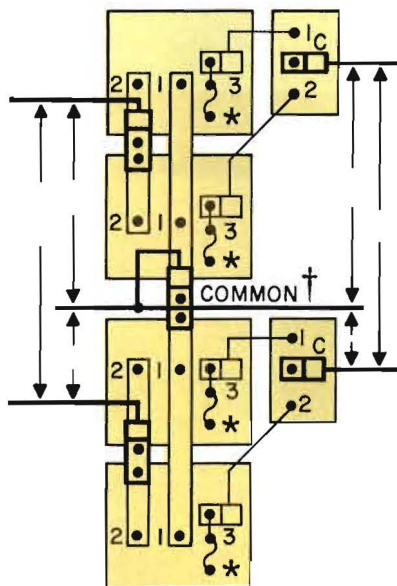
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CONNECTIONS

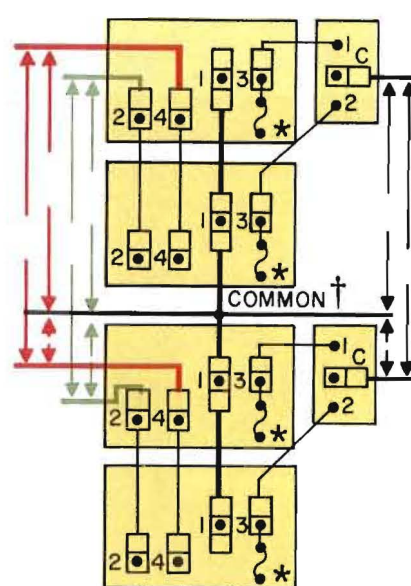


±4 bus bar omitted on 1156C types

CONNECTIONS FOR TYPES
1156C-4P, 1156CL-4P,
1256C-4P and 1256CL-4P



CONNECTIONS FOR TYPES
1156C-4PS, 1156CL-4PS,
1156C-4D and 1156CL-4D



CONNECTIONS FOR TYPES
1256C-4PS, 1256CL-4PS,
1256C-4D and 1256CL-4D

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX AMPS.	VOLTS	MAX KVA
1156C-4P M1156C-4P	1 PHASE PARALLEL	170	50-60	1-2	1-C (Choke)	180.0	0-140	25.2
1156CL-4P M1156CL-4P		170	50-60	1-2	1-C (Choke)	180.0	0-120	21.6
1256C-4P M1256C-4P	1 PHASE PARALLEL	240 120	50-60 50/60	1-2 1-4	1-C (Choke) 1-C (Choke)	112.0 112.0†	0-280 0-280	31.4 13.2‡
1256CL-4P M1256CL-4P		240 120	50-60 50/60	1-2 1-4	1-C (Choke) 1-C (Choke)	112.0 112.0†	0-240 0-240	26.9 12.9‡
1156C-4PS M1156C-4PS	1 PHASE SERIES PARALLEL	240	50-60	2-2	C (Choke) - C (Choke)	90.0	0-280	25.2
1156CL-4PS M1156CL-4PS	1 PHASE SERIES PARALLEL	240	50-60	2-2	C (Choke) - C (Choke)	90.0	0-240	21.6
1156C-4D M1156C-4D	3 PHASE OPEN-DELTA	120	50-60	2-1-2	C (Choke) - 1-C (Choke)	90.0	0-140	21.8
1156CL-4D M1156CL-4D		120	50-60	2-1-2	C (Choke) - 1-C (Choke)	90.0	0-120	18.7
1256C-4PS M1256C-4PS	1 PHASE SERIES PARALLEL	480 240	50-60 50/60	2-2 4-4	C (Choke) - C (Choke) C (Choke) - C (Choke)	56.0 56.0†	0-560 0-560	31.4 13.2‡
1256CL-4PS M1256CL-4PS		480 240	50-60 50/60	2-2 4-4	C (Choke) - C (Choke) C (Choke) - C (Choke)	56.0 56.0†	0-480 0-480	26.9 12.9‡
1256C-4D M1256C-4D	3 PHASE OPEN-DELTA	240 120	50-60 50/60	2-1-2 4-1-4	C (Choke) - 1-C (Choke) C (Choke) - 1-C (Choke)	56.0 56.0†	0-280 0-280	27.2 11.4‡
1256CL-4D M1256CL-4D		240 120	50-60 50/60	2-1-2 4-1-4	C (Choke) - 1-C (Choke) C (Choke) - 1-C (Choke)	56.0 56.0†	0-240 0-240	23.3 11.2‡

FOOTNOTES

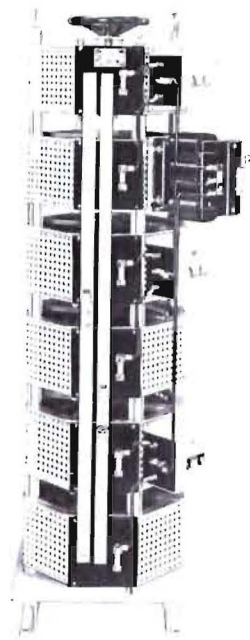
*45 ampere fuses supplied on 1156C types; 30 ampere fuses on 1256C types.

†Common used as third leg on 3-phase open-delta or neutral on 3-wire single phase connections; not used on 2-wire single phase connection.

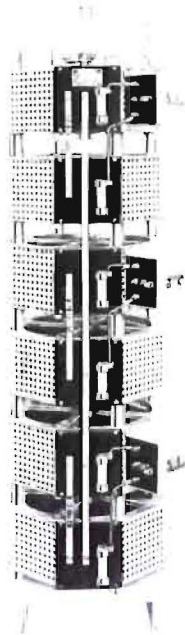
‡Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve Figure E on page 52.

§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure E on page 52.

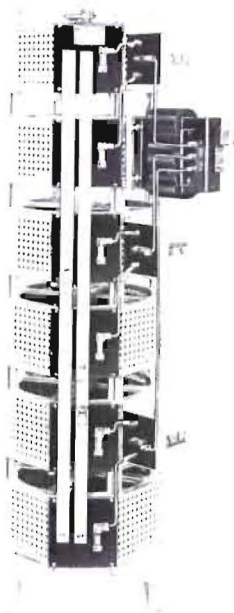
POWERSTAT® variable transformers



TYPE
1156C-6P

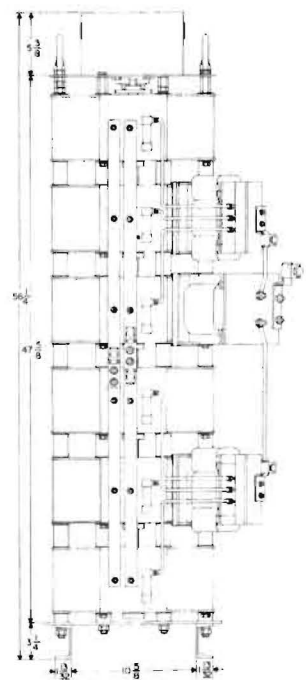
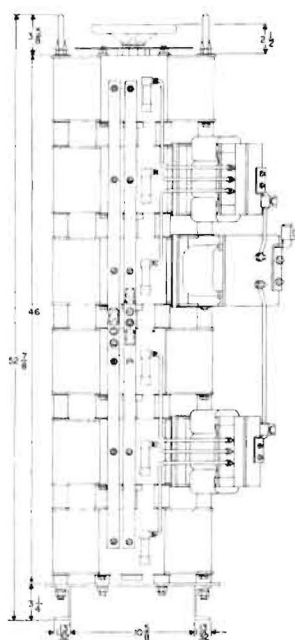
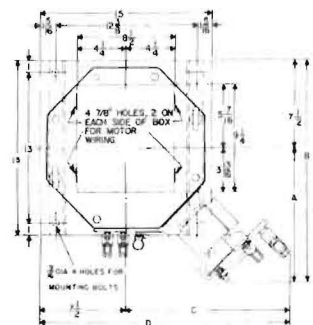
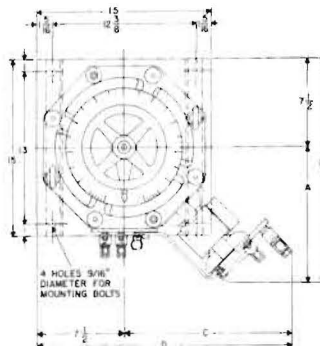


TYPE
1256C-6P



TYPE
1156C-6Y

OUTLINE DIMENSIONS

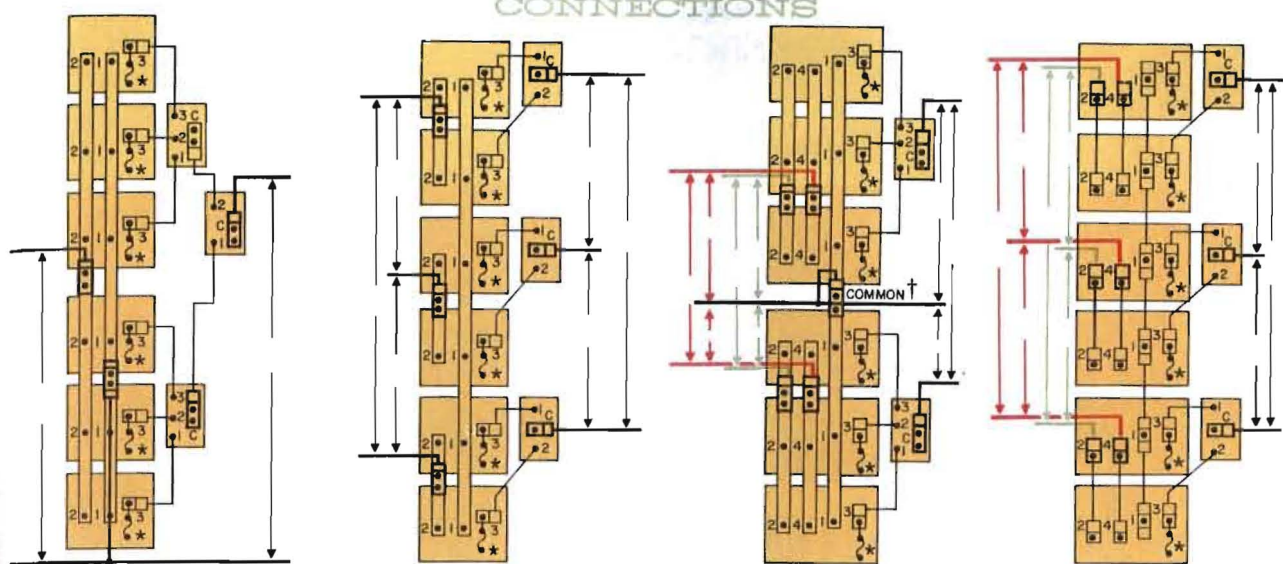


	A	B	C	D
1156C-6P	11 1/8	18 5/8	14 3/8	21 7/8
1156C-6PS	11 1/8	18 5/8	12 1/4	19 3/4
1156C-6D	11 1/8	18 5/8	11 13/16	19 5/16
1256C-6P	11 1/8	18 5/8	11 13/16	19 5/16
1256C-6PS	11 1/8	18 5/8	11 13/16	19 5/16
1256C-6D	11 1/8	18 5/8	11 13/16	19 5/16
1156C-6Y	9 3/4	17 1/4	9 1/8	16 5/8
1256C-6Y	9 3/4	17 1/4	9 1/8	16 5/8

6C-6P,
56C-6PS,
6C-6D,
1256C-6Y

ners

CONNECTIONS



1156C choking arrangement shown

CONNECTION FOR
TYPE 1156C-6P TYPE 1156CL-6P
TYPE 1256C-6P TYPE 1256CL-6P

CONNECTION FOR
TYPE 1156C-6Y TYPE 1156CL-6Y

#4 bus bars omitted on 1156C types

CONNECTION FOR
TYPE 1156C-6PS TYPE 1156CL-6PS
TYPE 1156C-6D TYPE 1156CL-6D
TYPE 1256C-6PS TYPE 1256CL-6PS
TYPE 1256C-6D TYPE 1256CL-6D

CONNECTION FOR
TYPE 1256C-6Y TYPE 1256CL-6Y

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
1156C-6P M1156C-6P	1 PHASE PARALLEL	120	50/60	1-2	1-C (Choke)	270.0	0-140	37.8
1156CL-6P M1156CL-6P	1 PHASE PARALLEL	120	50/60	1-2	1-C (Choke)	270.0	0-120	32.4
1256C-6P M1256C-6P	1 PHASE PARALLEL	240	50/60	1-2	1-C (Choke)	168.0	0-280	47.0
1256CL-6P M1256CL-6P	1 PHASE PARALLEL	240	50/60	1-2	1-C (Choke)	168.0	0-240	40.3
1156C-6PS M1156C-6PS	1 PHASE SERIES - PARALLEL	240	50/60	2-2	C (Choke) - C (Choke)	135.0	0-280	37.8
1156CL-6PS M1156CL-6PS	1 PHASE SERIES - PARALLEL	240	50/60	2-2	C (Choke) - C (Choke)	135.0	0-240	32.4
1156C-6D M1156C-6D	3 PHASE OPEN-DELTA	120	50/60	2-1-2	C (Choke) - 1-C (Choke)	135.0	0-140	32.7
1156CL-6D M1156CL-6D	3 PHASE OPEN-DELTA	120	50/60	2-1-2	C (Choke) - 1-C (Choke)	135.0	0-120	29.1
1256C-6PS M1256C-6PS	1 PHASE SERIES - PARALLEL	{ 480 240	{ 50/60 50/60	{ 2-2 4-4	{ C (Choke) - C (Choke) C (Choke) - C (Choke)	{ 84.0 84.0†	{ 0-560 0-560	{ 47.0 19.8§
1256CL-6PS M1256CL-6PS	1 PHASE SERIES - PARALLEL	{ 480 240	{ 50/60 50/60	{ 2-2 4-4	{ C (Choke) - C (Choke) C (Choke) - C (Choke)	{ 84.0 84.0†	{ 0-480 0-480	{ 40.3 19.4§
1256C-6D M1256C-6D	3 PHASE OPEN-DELTA	{ 240 120	{ 50/60 50/60	{ 2-1-2 4-1-4	{ C (Choke) - 1-C (Choke) C (Choke) - 1-C (Choke)	{ 84.0 84.0†	{ 0-240 0-280	{ 40.7 17.1§
1256CL-6D M1256CL-6D	3 PHASE OPEN-DELTA	{ 240 120	{ 50/60 50/60	{ 2-1-2 4-1-4	{ C (Choke) - 1-C (Choke) C (Choke) - 1-C (Choke)	{ 84.0 84.0†	{ 0-240 0-240	{ 34.9 16.8§
1156C-6Y M1156C-6Y	3 PHASE WYE	240	60	2-2-2	C (Choke) — C (Choke) — C (Choke)	90.0	0-280	43.7
1156CL-6Y M1156CL-6Y	3 PHASE WYE	240	50/60	2-2-2	C (Choke) — C (Choke) — C (Choke)	90.0	0-240	37.4
1256C-6Y M1256C-6Y	3 PHASE WYE	{ 480 240	{ 60 60	{ 2-2-2 4-4-4	{ C (Choke) — C (Choke) — C (Choke) C (Choke) — C (Choke) — C (Choke)	{ 56.0 56.0†	{ 0-560 0-560	{ 54.1 22.8§
1256CL-6Y M1256CL-6Y	3 PHASE WYE	{ 480 240	{ 50/60 50/60	{ 2-2-2 4-4-4	{ C (Choke) — C (Choke) — C (Choke) C (Choke) — C (Choke) — C (Choke)	{ 56.0 56.0†	{ 0-480 0-480	{ 46.6 22.3§

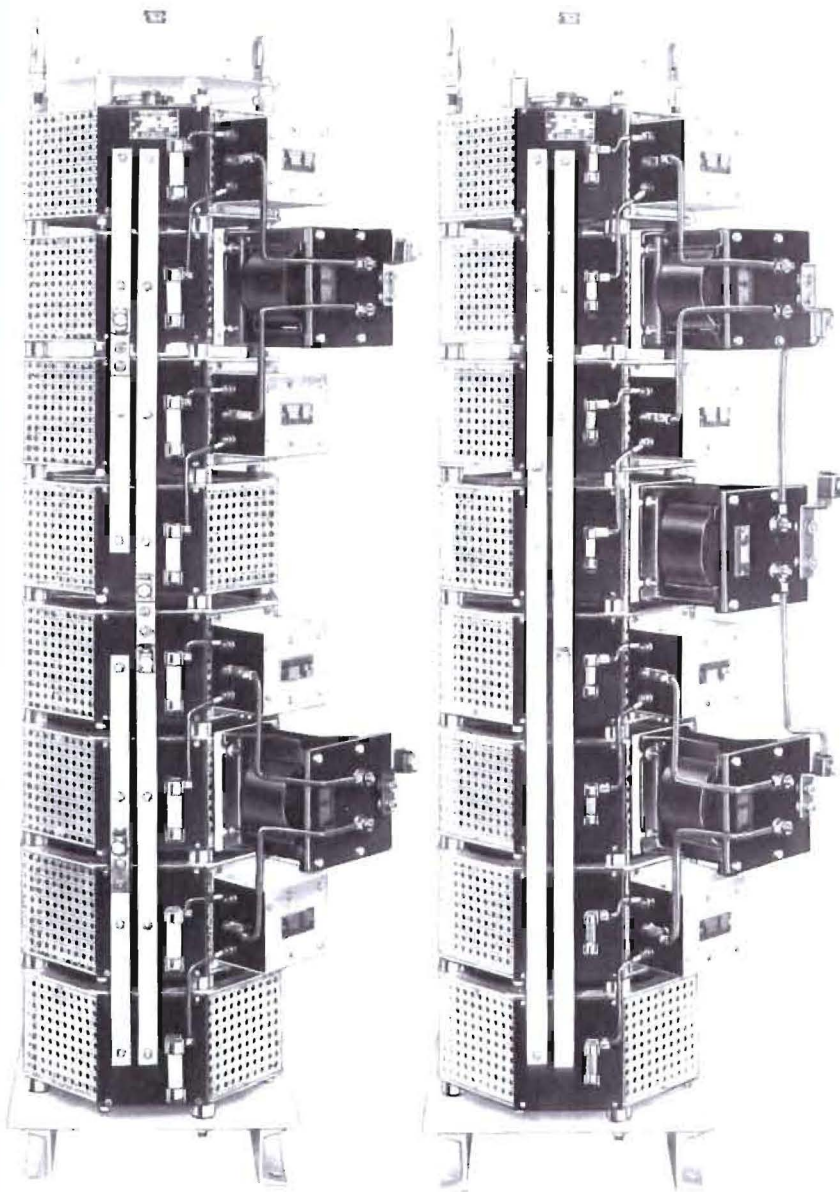
FOOTNOTES { *45 ampere fuses furnished on 1156C types; 30 ampere fuses on 1256C types.
†Common used as third leg on 3-phase open-delta connection is not supplied on single phase assemblies.
‡Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve Figure E on page 52.
§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure E on page 52.

1156C-1256C series

TYPES M1156C-RPS, M1256C-RPS,
M1156C-RT, M1256C-RT
and M1256C-RP

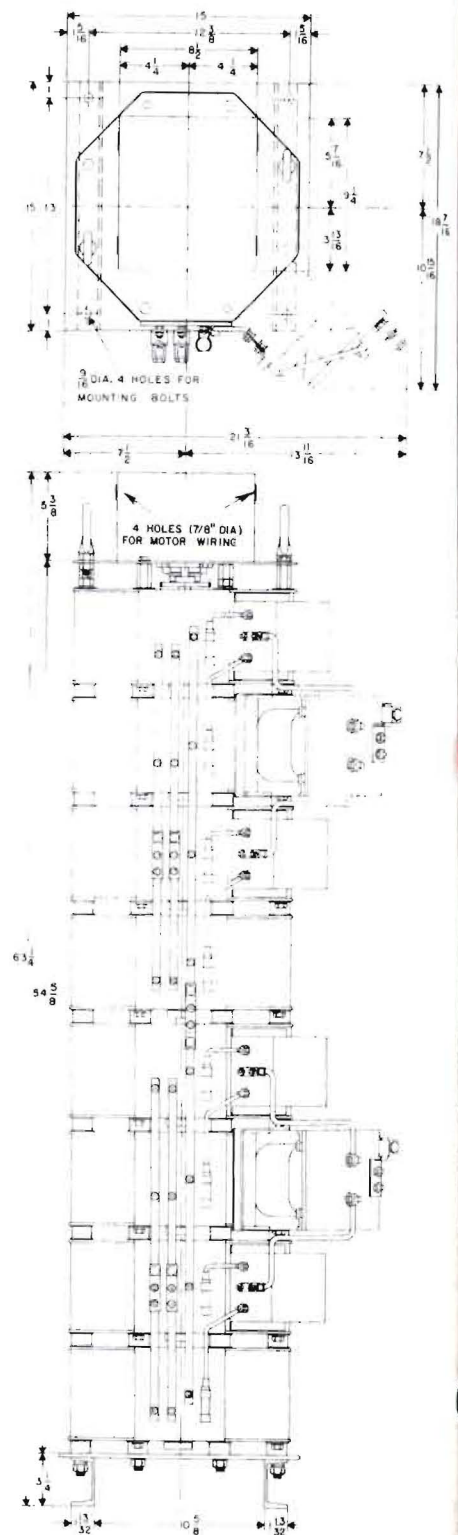
POWERSTAT® variable transformers

OUTLINE DIMENSIONS



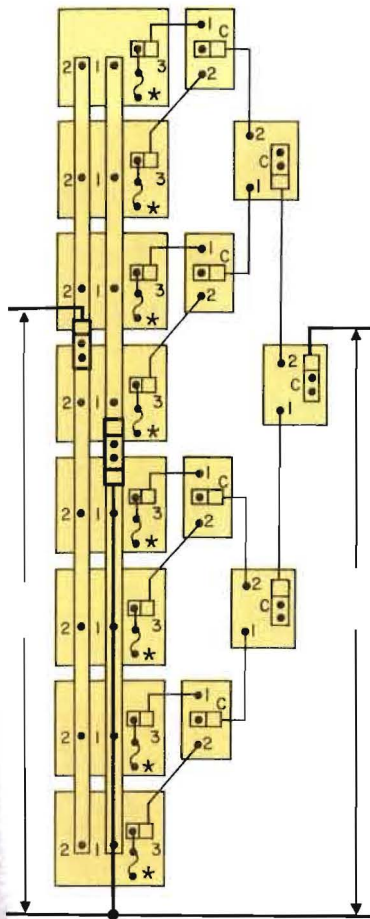
TYPE 30M1156C-8D

TYPE 30M1256C-8P

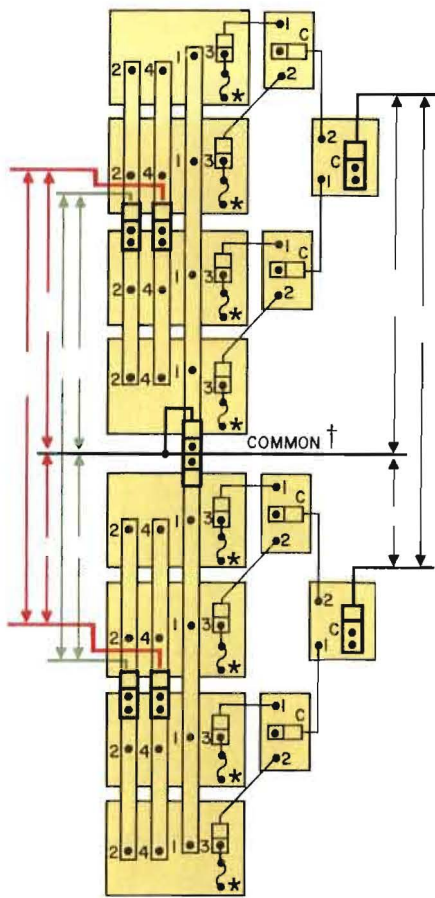


M1256C-8D DETAILS SHOWN

CONNECTIONS



CONNECTION FOR
TYPE M1256C-8P
TYPE M1256CL-8P



CONNECTION FOR
TYPE M1156C-8PS
TYPE M1156CL-8PS
TYPE M1156C-8D
TYPE M1156CL-8D
TYPE M1256C-8PS
TYPE M1256CL-8PS
TYPE M1256C-8D
TYPE M1256CL-8D

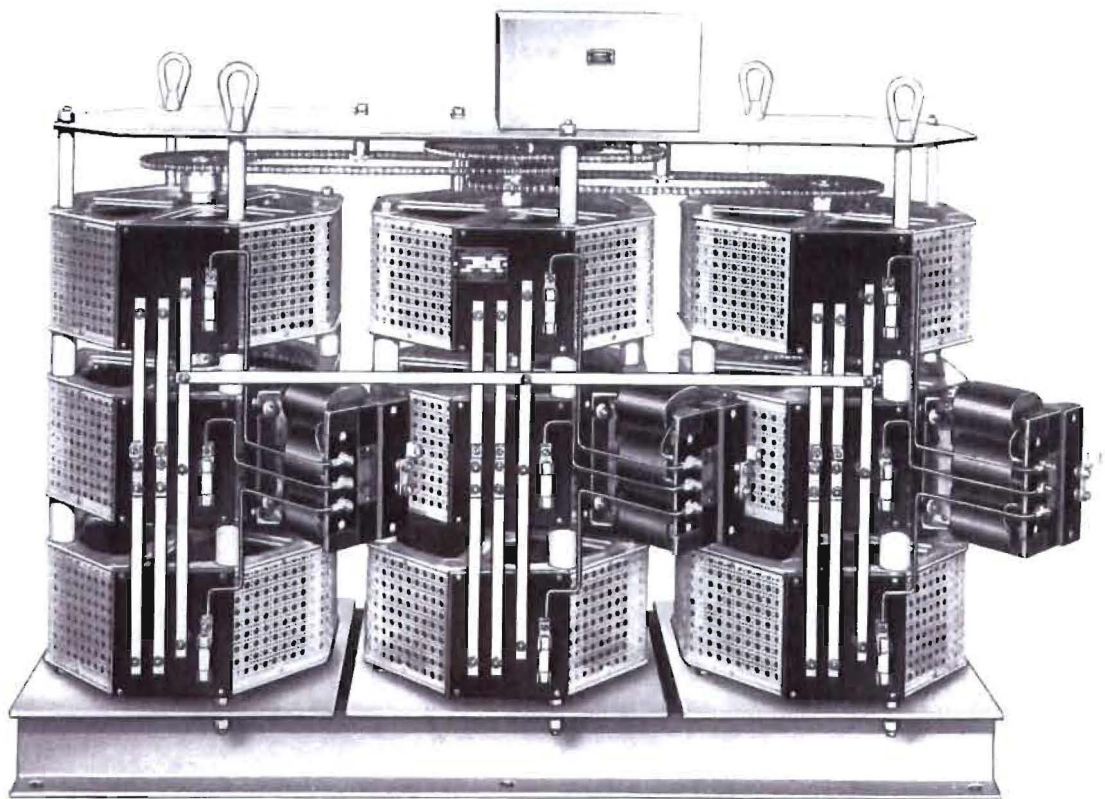
#4 bus bars omitted on M1156C types

RATINGS

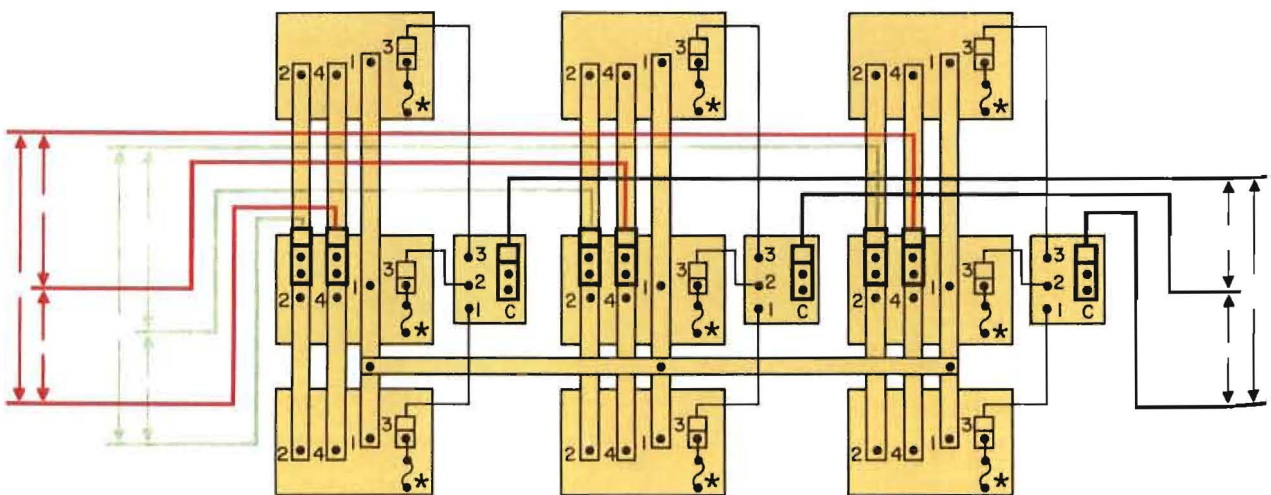
TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1256C-8P	1 PHASE PARALLEL	240	50/60	1-2	1-C (Choke)	224.0	0-280	62.7
M1256CL-8P	1 PHASE PARALLEL	240	50/60	1-2	1-C (Choke)	224.0	0-240	53.8
M1156C-8PS	1 PHASE SERIES - PARALLEL	240	50-60	2-2	C (Choke) — C (Choke)	180.0	0-280	50.4
M1156CL-8PS	1 PHASE SERIES - PARALLEL	240	50-60	2-2	C (Choke) — C (Choke)	180.0	0-240	43.2
M1156C-8D	3 PHASE OPEN-DELTA	120	50-60	2-1-2	C (Choke) — 1 — C (Choke)	180.0	0-140	43.6
M1156CL-8D	3 PHASE OPEN-DELTA	120	50-60	2-1-2	C (Choke) — 1 — C (Choke)	180.0	0-120	37.4
M1256C-8PS	1 PHASE SERIES - PARALLEL	480	50-60	2-2	C (Choke) — C (Choke)	112.0	0-560	62.7
M1256CL-8PS	1 PHASE SERIES - PARALLEL	240	50/60	4-4	C (Choke) — C (Choke)	112.0†	0-560	26.3‡
M1256C-8D	3 PHASE OPEN-DELTA	240	50-60	2-2	C (Choke) — C (Choke)	112.0	0-480	53.8
M1256CL-8D	3 PHASE OPEN-DELTA	240	50-60	2-1-2	C (Choke) — 1 — C (Choke)	112.0†	0-480	25.8‡
M1256C-8D	3 PHASE OPEN-DELTA	240	50-60	2-1-2	C (Choke) — 1 — C (Choke)	112.0	0-280	54.3
M1256CL-8D	3 PHASE OPEN-DELTA	120	50/60	4-1-4	C (Choke) — 1 — C (Choke)	112.0†	0-280	22.8‡
M1256CL-8D	3 PHASE OPEN-DELTA	240	50-60	2-1-2	C (Choke) — 1 — C (Choke)	112.0	0-240	46.6
M1256CL-8D	3 PHASE OPEN-DELTA	120	50/60	4-1-4	C (Choke) — 1 — C (Choke)	112.0†	0-240	22.3‡

FOOTNOTES { *45 ampere fuses furnished on 1156C types; 30 ampere fuses on 1256C types.
†Common used as third leg on 3-phase open-delta connection is not supplied on single phase assemblies.
‡Maximum output current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve Figure E on page 52.
§Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure E on page 52.

POWERSTAT® variable transformers



CONNECTIONS

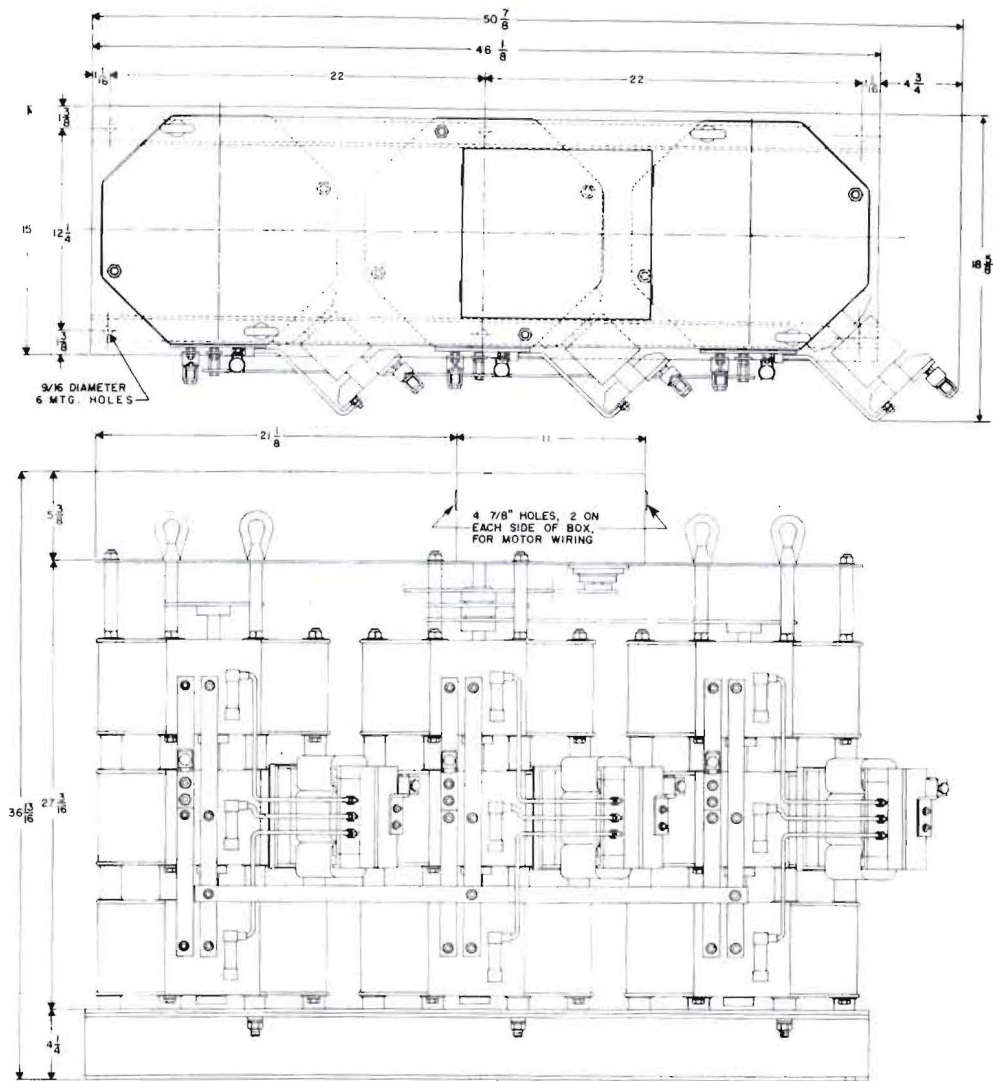


#4 bus bars omitted on M1156C types

CONNECTION FOR TYPES M1156C-9Y, M1156CL-9Y, M1256C-9Y and M1256CL-9Y

*45 Ampere fuses supplied on 1156C types; 30 ampere on 1256C types.

OUTLINE DIMENSIONS



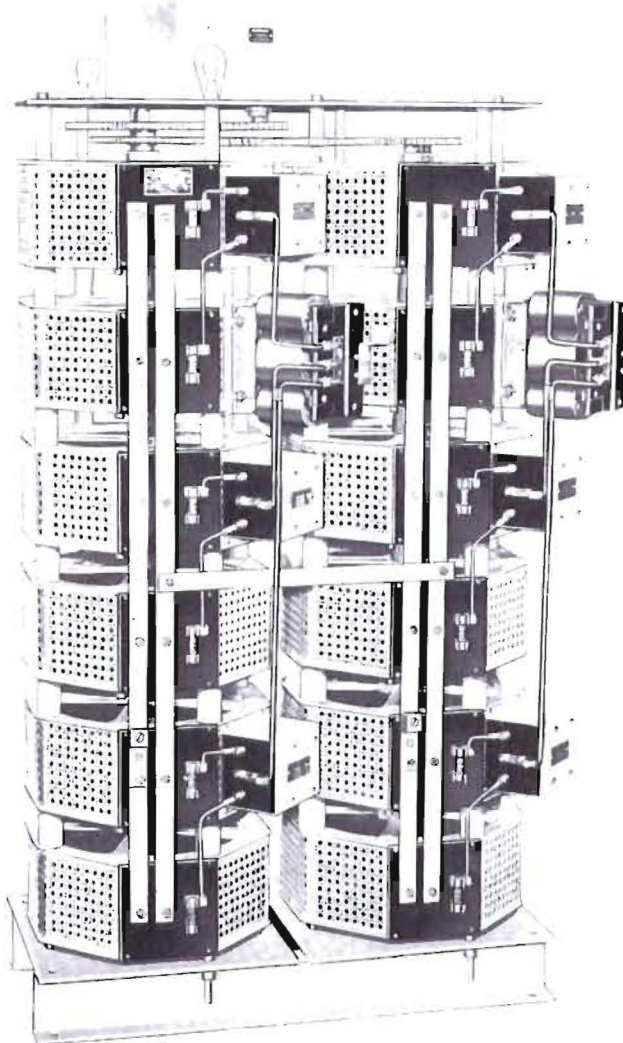
M1156C-9Y DETAILS SHOWN

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI-NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1156C-9Y	3 PHASE WYE	240	60	4-4-4	C (Choke) — C (Choke) — C (Choke)	84.0†	0-560	34.2‡
M1156CL-9Y	3 PHASE WYE	240	50/60	4-4-4	C (Choke) — C (Choke) — C (Choke)	84.0†	0-560	34.2‡
M1256C-9Y	3 PHASE WYE	240	60	4-4-4	C (Choke) — C (Choke) — C (Choke)	84.0†	0-560	34.2‡
M1256CL-9Y	3 PHASE WYE	240	50/60	4-4-4	C (Choke) — C (Choke) — C (Choke)	84.0†	0-480	33.5‡

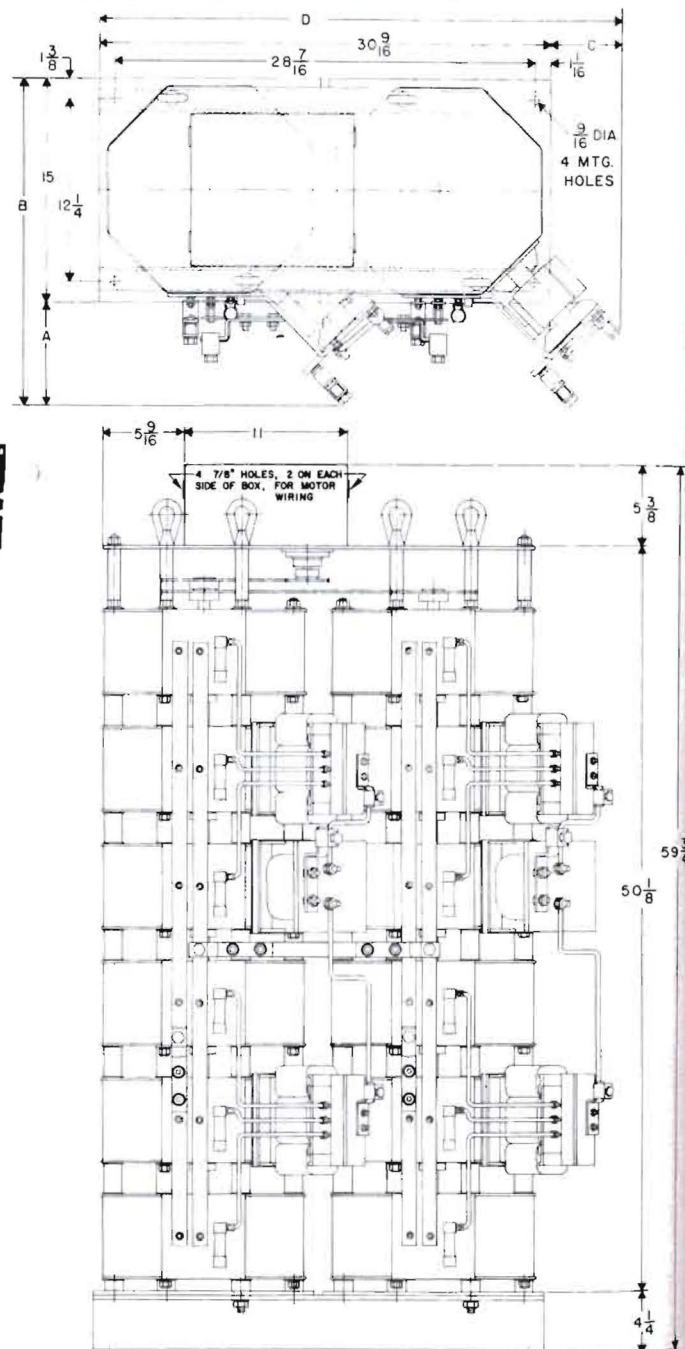
FOOTNOTES { †Maximum output current at output voltages up to 300 volts, at higher output voltages, output current must be reduced according to rating curve Figure E on page 52.
‡Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure E on page 52.

POWERSTAT® variable transformers



TYPE 30M1256C-12PS

OUTLINE DIMENSIONS

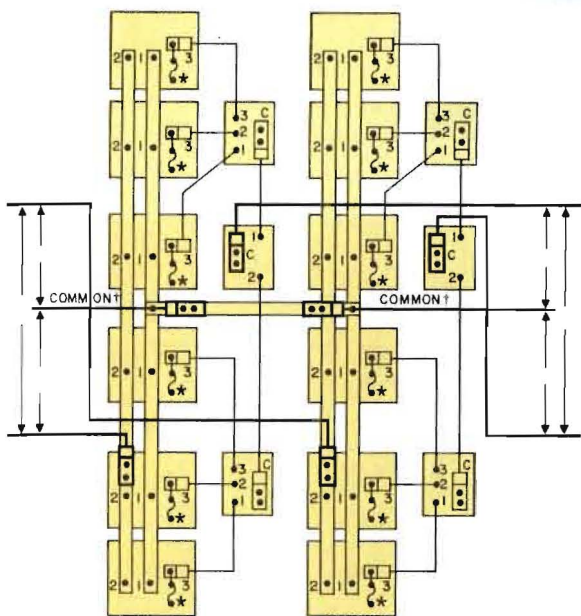


M1156C choking arrangement shown

TYPE	A	B	C	D
M1156C-12PS	6 $\frac{7}{8}$	21 $\frac{7}{8}$	4 $\frac{3}{4}$	35 $\frac{5}{16}$
M1256C-12PS	3 $\frac{5}{8}$	18 $\frac{5}{8}$	4 $\frac{3}{4}$	35 $\frac{5}{16}$

"PS" AND "D" TYPES SHOWN

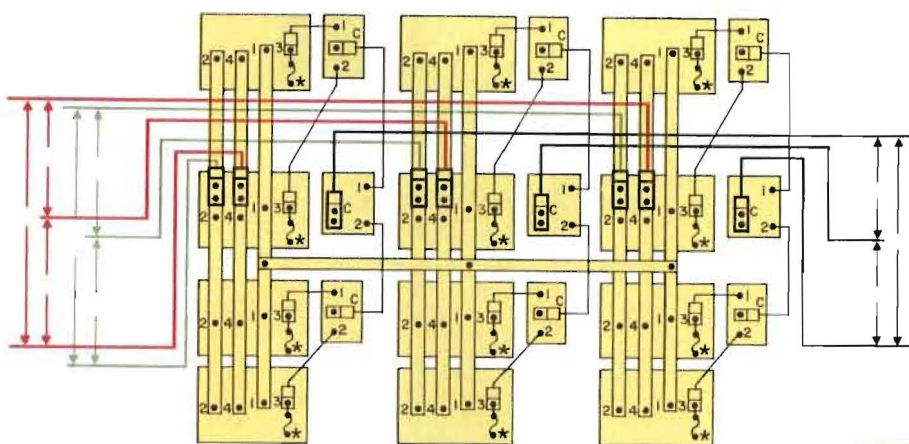
OUTLINE DIMENSIONS FOR "Y" TYPES ARE SIMILAR TO
9Y TYPES SHOWN ON PAGE 67 EXCEPT $44 \frac{1}{16}$ " HIGH,
 $49 \frac{3}{16}$ " WIDE AND $21 \frac{3}{16}$ " DEEP



M1156C choking arrangement shown

CONNECTIONS

CONNECTION FOR
TYPE M1156C-12PS
TYPE M1156CL-12PS
TYPE M1156C-12D
TYPE M1156CL-12D
TYPE M1256C-12PS
TYPE M1256CL-12PS
TYPE M1256C-12D
TYPE M1256CL-12D



±4 bus bars omitted on M1156C types

RATINGS

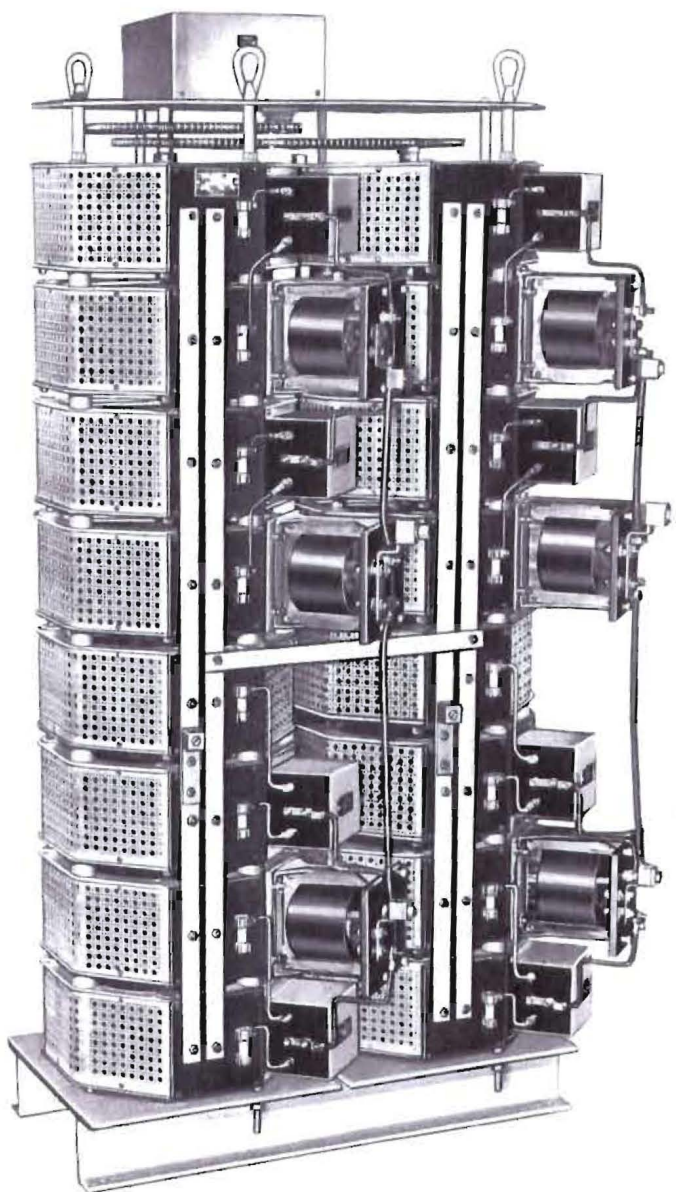
TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1156C-12PS	1 PHASE SERIES-PARALLEL	240	50/60	2-2	C (Choke) — C (Choke)	270.0	0-280	75.6
M1156CL-12PS	1 PHASE SERIES-PARALLEL	240	50/60	2-2	C (Choke) — C (Choke)	270.0	0-240	64.8
M1156C-12D	3 PHASE OPEN-DELTA	120	50/60	2-1-2	C (Choke) — 1 — C (Choke)	270.0	0-140	65.5
M1156CL-12D	3 PHASE OPEN-DELTA	120	50/60	2-1-2	C (Choke) — 1 — C (Choke)	270.0	0-120	56.1
M1256C-12PS	1 PHASE SERIES-PARALLEL	480	50/60	2-2	C (Choke) — C (Choke)	168.0	0-560	94.1
M1256CL-12PS	1 PHASE SERIES-PARALLEL	480	50/60	2-2	C (Choke) — C (Choke)	168.0	0-480	80.6
M1256C-12D	3 PHASE OPEN-DELTA	240	50/60	2-1-2	C (Choke) — 1 — C (Choke)	168.0	0-280	81.5
M1256CL-12D	3 PHASE OPEN-DELTA	240	50/60	2-1-2	C (Choke) — 1 — C (Choke)	168.0	0-240	69.8
M1156C-12Y	3 PHASE WYE	240	50	2-2-2	C (Choke) — C (Choke) — C (Choke)	180.0	0-280	87.3
M1156CL-12Y	3 PHASE WYE	240	50/60	2-2-2	C (Choke) — C (Choke) — C (Choke)	180.0	0-240	74.8
M1256C-12Y	3 PHASE WYE	480	60	2-2-2	C (Choke) — C (Choke) — C (Choke)	112.0	0-560	108.6
M1256CL-12Y	3 PHASE WYE	240	50/60	4-4-4	C (Choke) — C (Choke) — C (Choke)	112.0†	0-560	45.6††
		480	50/60	2-2-2	C (Choke) — C (Choke) — C (Choke)	112.0	0-480	93.1
		240	50/60	4-4-4	C (Choke) — C (Choke) — C (Choke)	112.0†	0-480	44.7††

FOOTNOTES

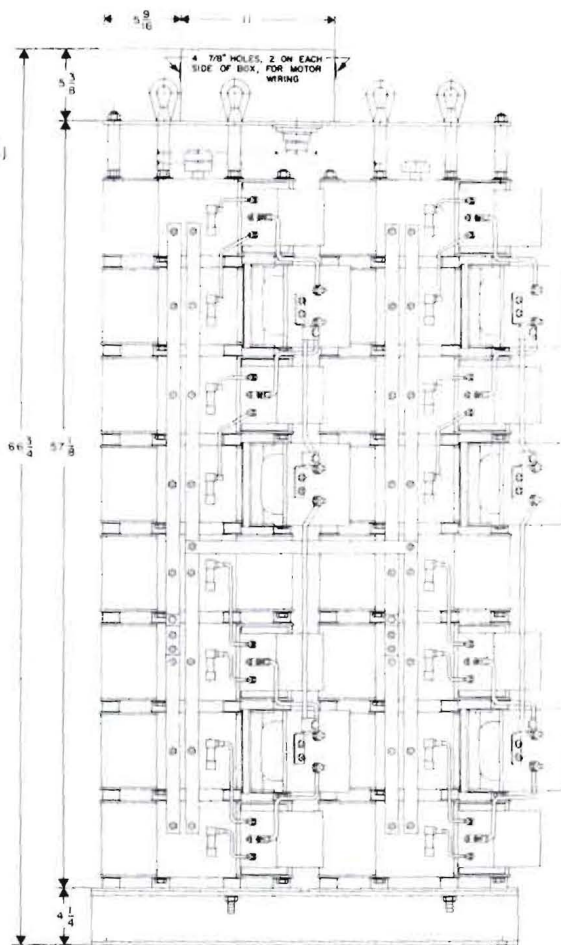
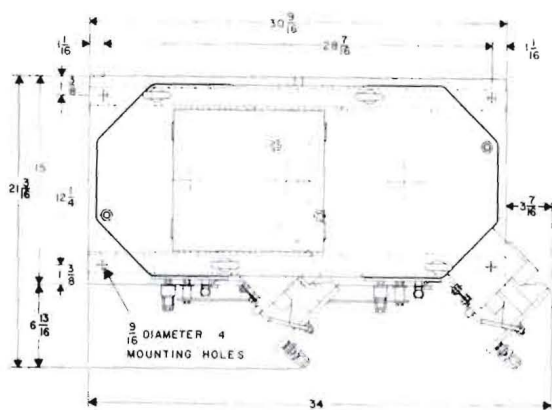
- * 45 Ampere fuses supplied on 1156C types; 30 ampere fuses on 1256C types.
† Common is third leg on 3-phase open-delta connection: Not supplied on single phase assemblies.
‡ Maximum output current at output voltages up to 300 volts. At higher output voltages, output current must be reduced as shown in rating curve figure E on page 52.
†† Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve figure E on page 52.

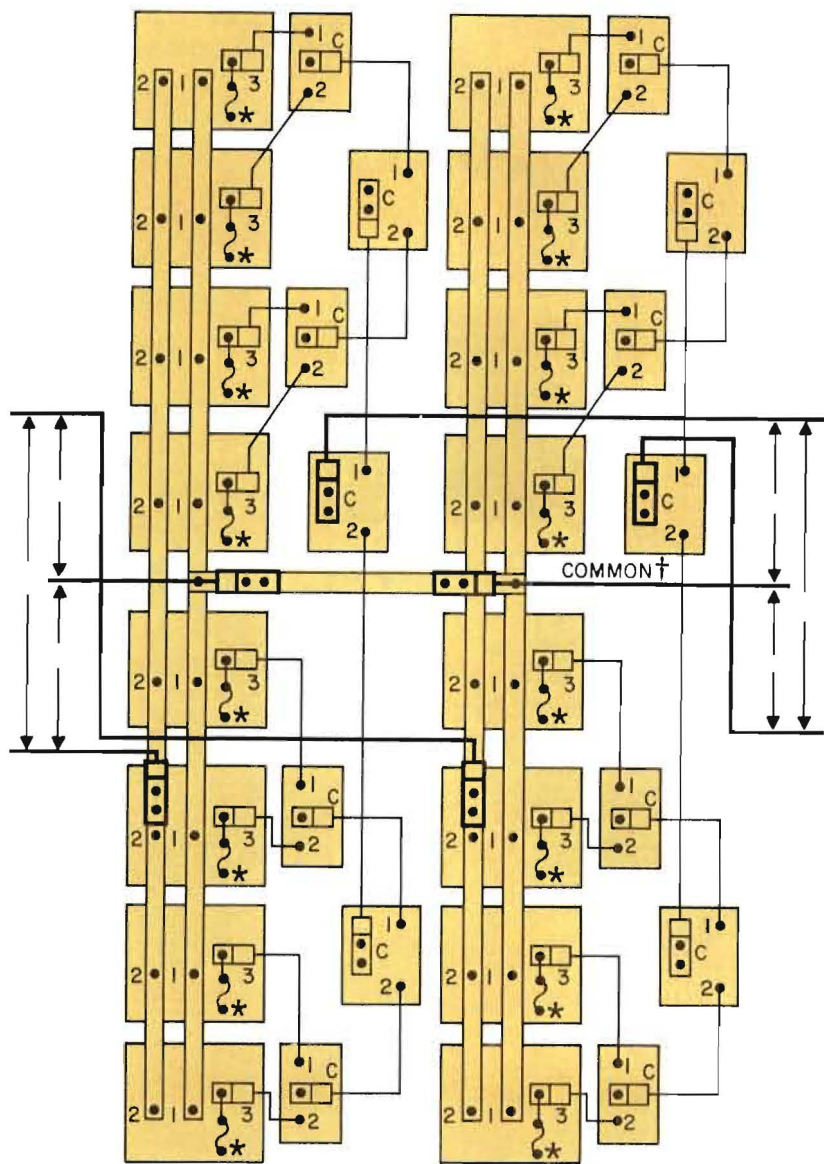
POWERSTAT® variable transformers

OUTLINE DIMENSIONS



TYPE 601256C-16PS





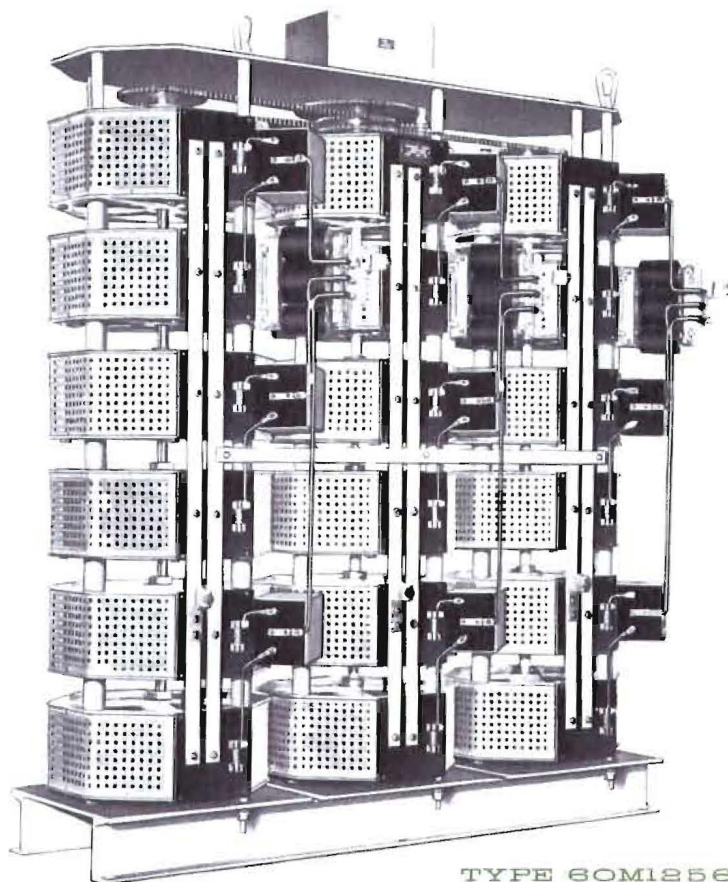
CONNECTIONS FOR
TYPE M1256C-16PS
TYPE M1256CL-16PS
TYPE M1256C-16D
TYPE M1256CL-16D

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1256C-16PS	1 PHASE SERIES-PARALLEL	480	50/60	2-2	C (Choke) — C (Choke)	224.0	0-560	125.4
M1256CL-16PS	1 PHASE SERIES-PARALLEL	480	50/60	2-2	C (Choke) — C (Choke)	224.0	0-480	107.5
M1256C-16D	3 PHASE OPEN-DELTA	240	50/60	2-1-2	C (Choke) — 1 — C (Choke)	224.0	0-280	108.6
M1256CL-16D	3 PHASE OPEN-DELTA	240	50/60	2-1-2	C (Choke) — 1 — C (Choke)	224.0	0-240	93.1

FOOTNOTES { *30 Ampere fuses are provided.
†Common used as third leg on 3-phase open-delta connection: not supplied on single phase assemblies.

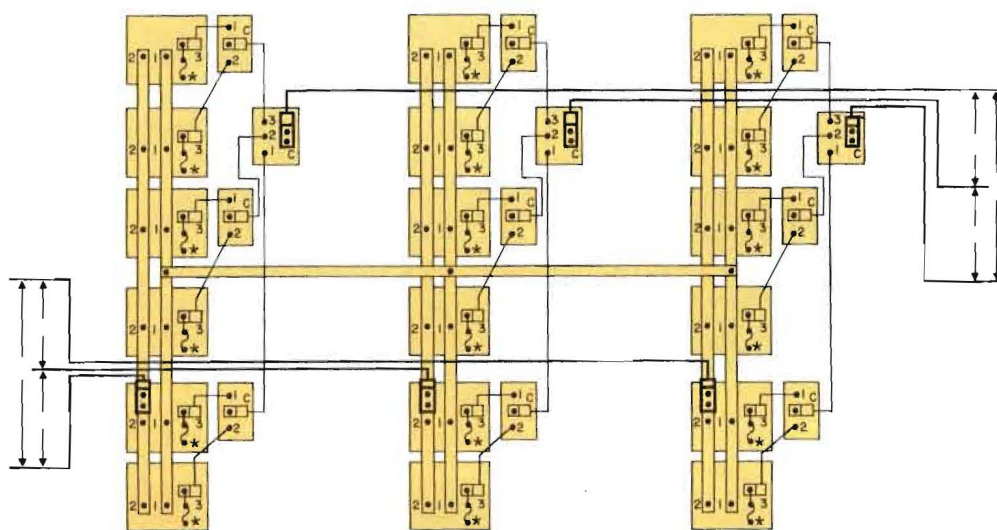
POWERSTAT® variable transformers



TYPE 60M1256C-18Y

page
72

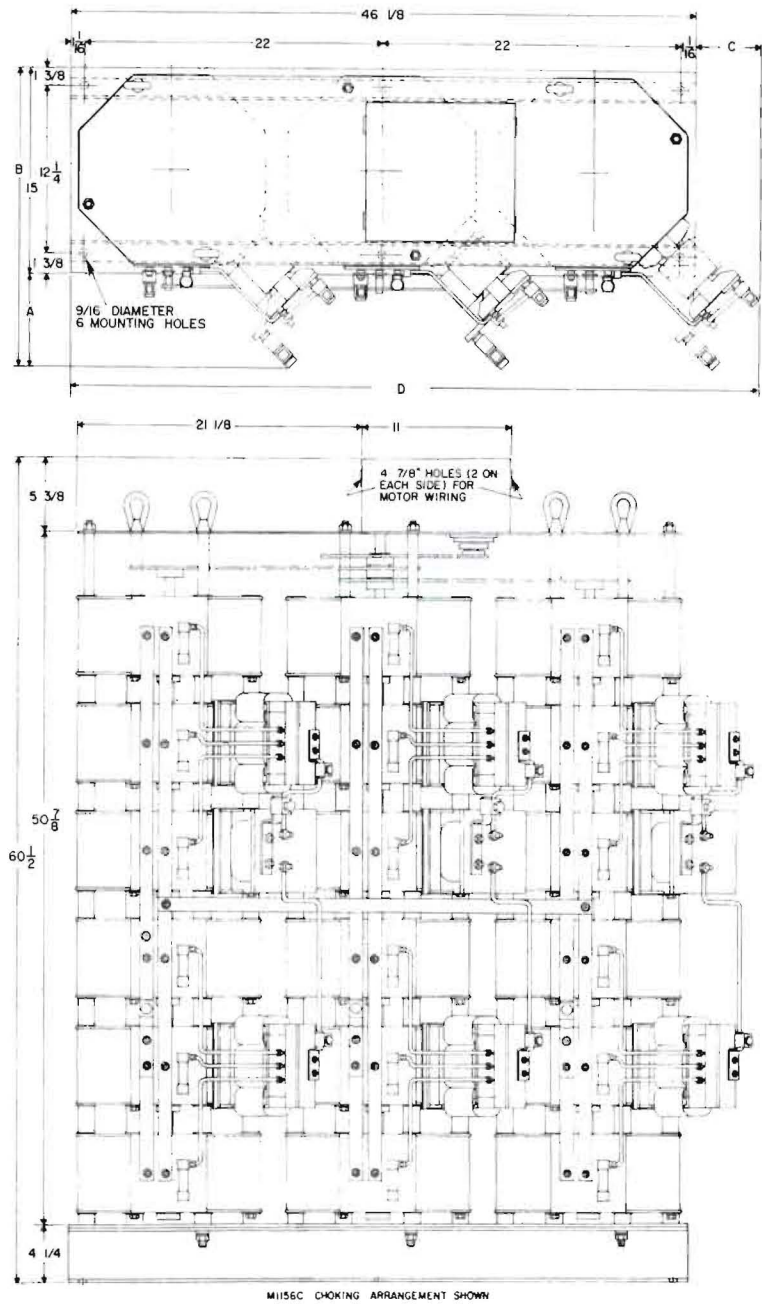
CONNECTIONS



M1256C choking arrangement shown

*45 Ampere fuses supplied on 1156C Types; 30 ampere fuses on 1256C Types.

OUTLINE DIMENSIONS



TYPE M1156C-18Y	
A	6 7/8
B	21 7/8
C	4 3/4
D	50 7/8
TYPE M1256C-18Y	
A	3 5/8
B	18 5/8
C	4 3/4
D	50 7/8

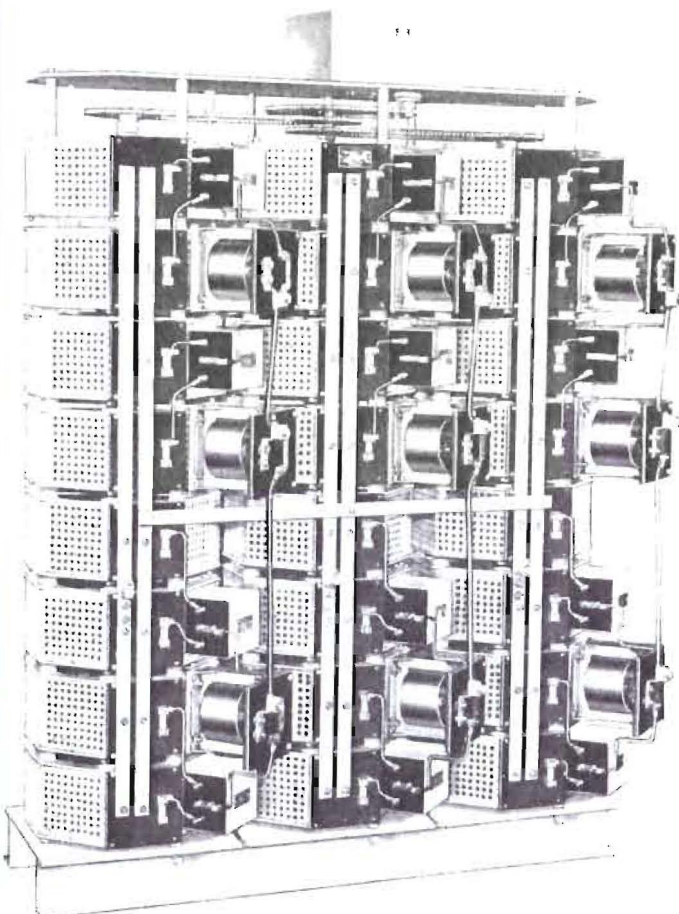
page
73

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1156C-18Y	3 PHASE WYE	240	60	2-2-2	C (Choke) — C (Choke) — C (Choke)	270.0	0-280	130.9
M1156CL-18Y	3 PHASE WYE	240	50/60	2-2-2	C (Choke) — C (Choke) — C (Choke)	270.0	0-240	112.2
M1256C-18Y	3 PHASE WYE	480	60	2-2-2	C (Choke) — C (Choke) — C (Choke)	168.0	0-560	163.0
M1256CL-18Y	3 PHASE WYE	480	50/60	2-2-2	C (Choke) — C (Choke) — C (Choke)	168.0	0-480	139.7

POWERSTAT® variable transformers

OUTLINE DIMENSIONS

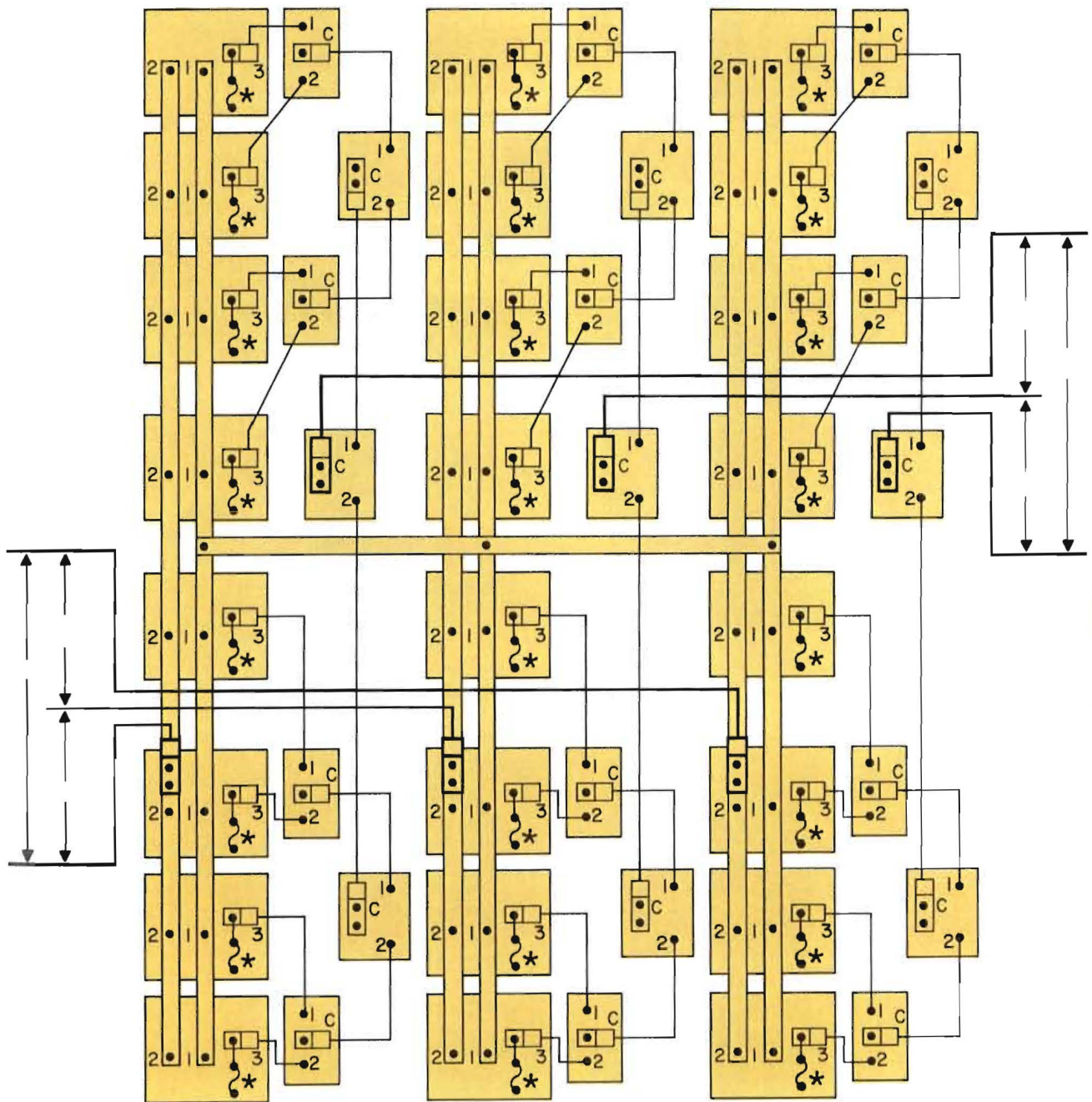


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74

RATINGS

TYPE	CONNECTION	INPUT			OUTPUT			
		VOLTS	CYCLES	TERMI- NALS	TERMINALS	MAX. AMPS.	VOLTS	MAX. KVA
M1256C-24Y	3 PHASE WYE	480	60	2-2-2	C (Choke) --- C (Choke) --- C (Choke)	224.0	0-560	217.3
M1256CL-24Y	3 PHASE WYE	480	50/60	2-2-2	C (Choke) --- C (Choke) --- C (Choke)	224.0	0-480	186.2

CONNECTIONS



CONNECTIONS FOR
TYPE M1256C-24Y AND TYPE M1256CL-24Y
*30 Ampere fuses supplied.

POWERSTAT® variable transformers

For most applications, standard air-cooled manually-operated or motor-driven POWERSTAT variable transformers fulfill the requirement. Even in hazardous locations, by exercising ingenuity in the layout of electrical installations, it is possible to use a standard air cooled motor-driven POWERSTAT. By locating the motor-driven POWERSTAT in a non-hazardous area and placing an explosion-proof pushbutton "raise-lower" switch at the point of control in the hazardous area, ideal variable voltage operation is obtained. However, there are applications where it is impossible to use a standard air-cooled POWERSTAT.



To provide safe operation in hazardous areas where a small arc or spark could cause an explosion, the Explosion-proof POWERSTAT is offered. The term, explosion-proof, means that the POWERSTAT is enclosed in a case which will withstand internal gas or vapor explosions. The case is also designed to prevent the ignition by internal spark, flash or explosion of the gas or vapor surrounding the enclosure.

Other applications require the immersion and mounting of a POWERSTAT variable transformer in transformer oil either to substantially increase its rating above normal air operation or to provide a measure of safety (although not completely explosion-proof) in areas where the atmosphere is of a hazardous nature or corrosive. The increase in power output is dependent upon the type of POWERSTAT, the quantity of oil in which the POWERSTAT is immersed, the area of wetted surface, and the type of container.

EXPLOSION-PROOF POWERSTATS type X-116, X-216, X-1126 and X-1226 are approved by Underwriters' Laboratories for Class I, Group D service. Class I is designated as any location in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosions or ignitable mixtures. Group D includes atmospheres containing gasoline, petroleum, naphtha, alcohols, acetone, lacquer solvent vapors and natural gas.

TYPES X-116 and X-216 For wall mounting. Type X-116 operates from 120 volt, 50, 60 cycle single phase lines and has a 0-140 or 0-120 volt, 7.5 ampere output. Type X-216 operates from 240 volt, 50/60 cycle single phase lines and has a 0-280 or 0-240 volt, 3.0 ampere output. Type X-216 may also be connected to operate on 120 volt lines with an output of 0-280 volts but the current cannot exceed that allowed by the curve in Figure A.

TYPES X-1126 and X-1226 For wall mounting. Type X-1126 delivers a 0-140 volt, 12.0 ampere output from a 120 volt, 50 60 cycle single phase input. Type X-1226 delivers a 0-280 volt, 6.0 ampere output from a 240 volt, 50 60 cycle single phase input. These types can also be ordered "L" connected so that the maximum output voltage is limited to the line voltage. Type X-1226 may also be connected to operate on 120 volt lines with an output of 0-280 volts but the current cannot exceed that allowed by the curve in Figure A.

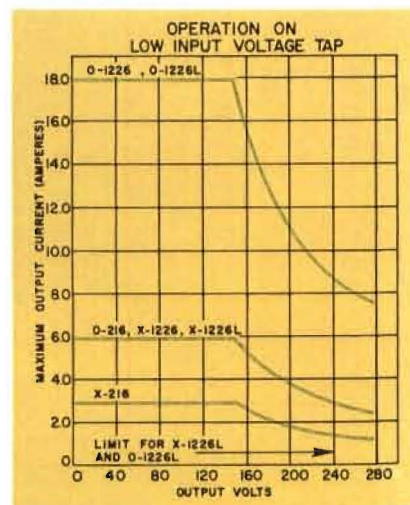


FIGURE A

OIL-COOLED POWERSTATS type O-116, O-216, O-1126 and O-1226 have twice the output current of their corresponding air-cooled types because of the heat dissipation qualities of the transformer oil and finned container.

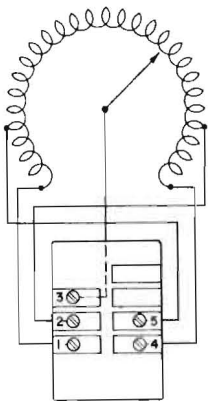
TYPES O-116 and O-216 For bench and back-of-panel mounting. Type O-116 has an output of 0-140 or 0-120 volts, 15.0 amperes from a 120 volt, 50/60 cycle, single phase input. Type O-216 has an output of 0-280 or 0-240 volts, 6.0 amperes from a 240 volt, 50/60 cycle, single phase line. Type O-216 may also be connected to operate on 120 volt lines with an output of 0-280 volts but the current cannot exceed that allowed by the curve in Figure A.

TYPES O-1126 and O-1226 For bench or back-of-panel mounting. Type O-1126 has an output of 0-140 volts, 30.0 amperes from a 120 volt, 50 60 cycle, single phase input. Type O-1226 has an output of 0-280 volts, 18.0 amperes from a 240 volt, 50 60 cycle, single phase source. These types can also be ordered "L" connected so that the maximum output voltage is limited to the line voltage. Type O-1226 may also be connected to operate on 120 volt lines with an output of 0-280 volts but the current cannot exceed that allowed by the curve in Figure A.

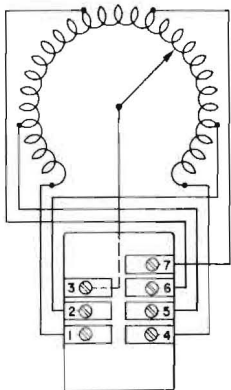
When oil-cooled POWERSTATS are shipped from the factory, they are not filled with the oil. A good grade of electrical insulating oil (mineral) such as General Electric Transil #10-C or Westinghouse Wemco Grade C should be used. Approximately one gallon is required for types O-116 and O-216; two gallons for types O-1126 and O-1226.

The output voltage of Oil-Cooled and Explosion-proof POWERSTATS can be limited to line voltage or to 17 per cent above line voltage. Figure A shows the current rating of types O-216, O-1226, X-216 and X-1226 when operated on the lower input voltage tap. Coil-To-Terminal Connections are shown in Figure B for Types O-116 and X-116; Figure C for types O-216 and X-216; Figure D for Types O-1126 and X-1126; and Figure E for Types O-1226 and X-1226. Standard Dial, Knob and angle of rotation are shown in Figure F for Types O-116, X-116, O-216 and X-216; Figure G for Types O-1126 and O-1226; and Figure H for Types X-1126 and X-1226. The d-c resistance is 0.9 ohms for an O-116 or X-116 coil; 6.5 ohms for an O-216 or X-216 coil; .28 ohms for an O-1126 or X-1126 coil; and 1.3 ohms for an O-1226 or X-1226 coil. The maximum core and brush loss in watts when operating under no load is given in the chart. Although O-116, O-216, X-116 and X-216 types may be connected in the field to deliver an output voltage of zero to line voltage, types O-1126, O-1226, X-1126 and X-1226 must be so ordered if the maximum output voltage is not to exceed the line voltage. When ordered this way, an L follows the last digit in the type number. For example: X-1226L.

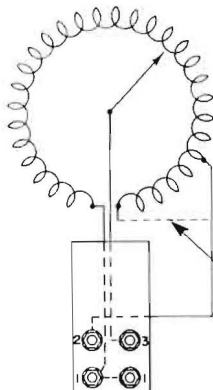
TYPE	Approximate Driving Torque (Ounce-Inches)	No Load Loss at 60 Cycles (Watts)
O-116 } X-116 }	50-75	6.5
O-216 } X-216 }	50-75	6.5
O-1126 } X-1126 }	100-150	12.0
O-1226 } X-1226 }	100-150	15.0



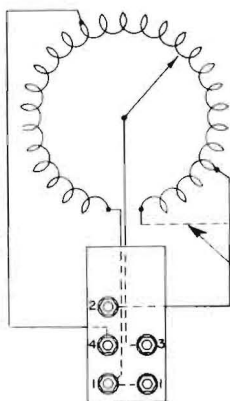
O-116, X-116
FIGURE B



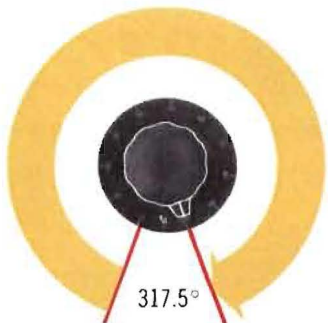
O-216, X-216
FIGURE C



O-1126, X-1126
FIGURE D



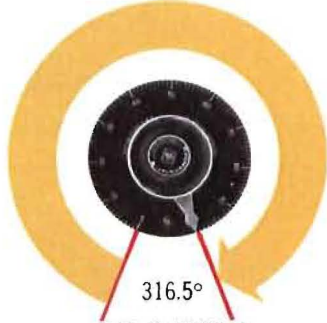
O-1226, X-1226
FIGURE E



ANGLE OF ROTATION
O-116, X-116, O-216, X-216
FIGURE F



ANGLE OF ROTATION
O-1126, O-1226
FIGURE G



ANGLE OF ROTATION
X-1126, X-1226
FIGURE H

OIL-COOLED and EXPLOSION-PROOF

TYPES O-116, O-216, O-1126,
O-1226, X-116, X-216,
X-1126 and X-1226

POWERSTAT® variable transformers

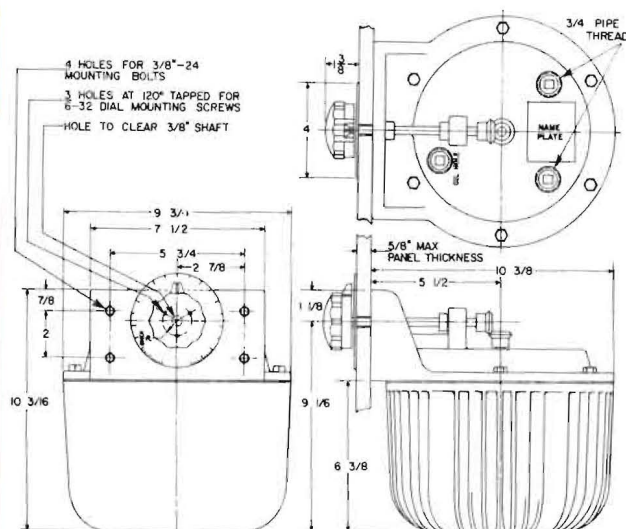


TYPE O-1126

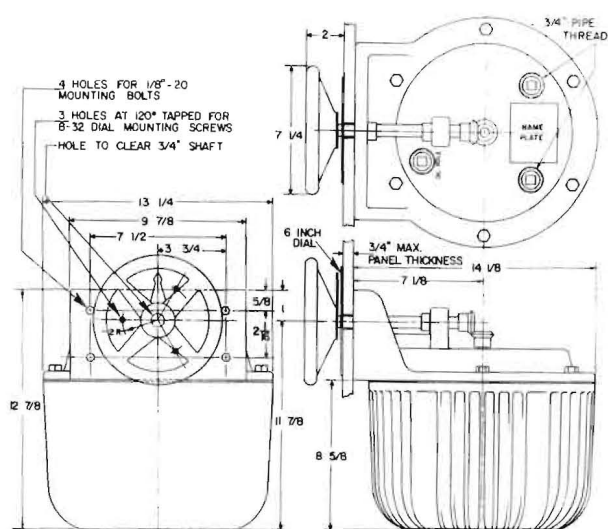


TYPE X-1126

OUTLINE DIMENSIONS FOR TYPES O-116, O-216 and O-1126, O-1226



TYPES O-116 AND O-216



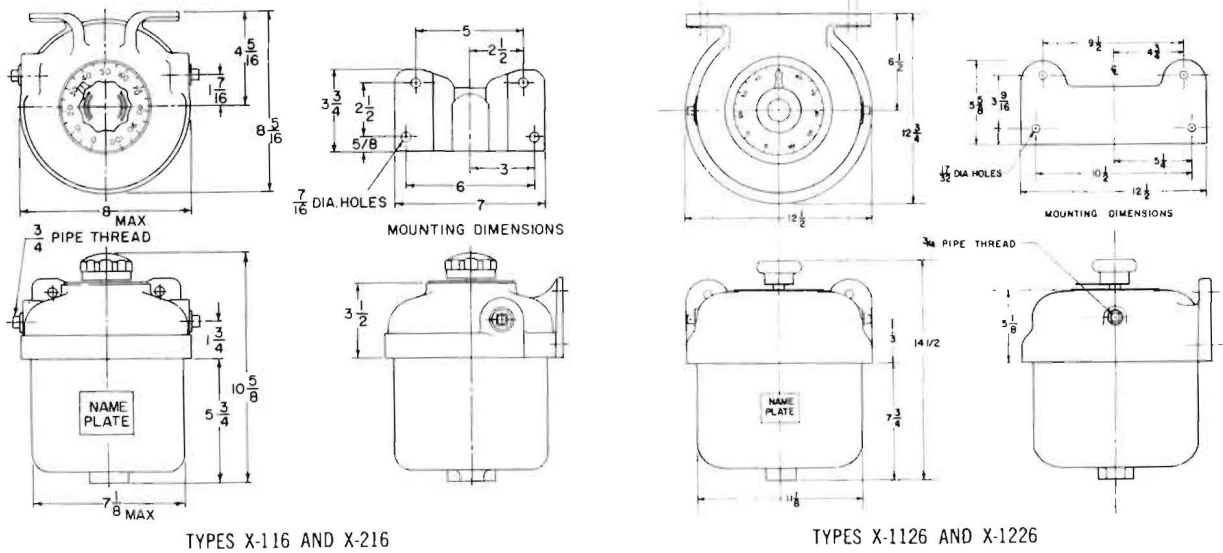
TYPES O-1126 AND O-1226

CONNECTIONS AND RATINGS

TYPE	KNOB ROTATION	INPUT			DIAGRAM	RECOM- MENDED FUSE (AMPS.)	OUTPUT			
		VOLTS	CYCLES	TERMI- NALS			TERMI- NALS	MAX. AMPS.	VOLTS	MAX. KVA
O-116	CW	120	50/60	4-5		15	3-4	15.0	0-140	2.1
	CCW	120	50/60	1-2		15	1-3	15.0	0-140	2.1
	CW	120	50/60	1-4		15	3-4	15.0	0-120	1.8
X-116	CW	120	50/60	4-5		8	3-4	7.5	0-140	1.0
	CCW	120	50/60	1-2		8	1-3	7.5	0-140	1.0
	CW	120	50/60	1-4		8	3-4	7.5	0-120	.90
O-216	CW	120	50/60	4-7		6	3-4	6.0†	0-280	.71†
	CCW	120	50/60	1-6		6	1-3	6.0†	0-280	.71†
	CW	240	50/60	4-5		6	3-4	6.0	0-280	1.7
X-216	CW	120	50/60	1-2		6	1-3	6.0	0-280	1.7
	CCW	240	50/60	1-4		6	3-4	6.0	0-240	1.4
	CW	240	50/60	1-4		6	1-3	6.0	0-240	1.4
O-1126	CW	120	50/60	1-2		30	1-3	30.0	0-140	4.2
	CCW	120	50/60	1-2		15	1-3	12.0	0-140	1.7
	CW	120	50/60	1-2		30	2-3	30.0	0-120	4.2
X-1126L	CW	120	50/60	1-2		30	2-3	30.0	0-120	3.6
	CCW	120	50/60	1-2		15	1-3	12.0	0-120	1.4
	CW	120	50/60	1-2		15	2-3	12.0	0-120	1.4
O-1226	CW	120	50/60	1-4		20	1-3	18.0†	0-280	2.1†
	CCW	240	50/60	1-2		20	1-3	18.0	0-280	5.0
	CW	240	50/60	1-2		20	2-3	18.0	0-280	5.0
X-1226	CW	120	50/60	1-4		6	1-3	6.0†	0-280	.71†
	CCW	240	50/60	1-2		6	1-3	6.0	0-280	1.7
	CW	240	50/60	1-2		6	2-3	6.0	0-280	1.7
O-1226L	CW	120	50/60	1-4		20	1-3	18.0†	0-240	2.1†
	CCW	240	50/60	1-2		20	2-3	18.0	0-240	4.3
	CW	240	50/60	1-2		20	1-3	18.0	0-240	4.3
X-1226L	CW	120	50/60	1-4		6	1-3	6.0†	0-240	.68†
	CCW	240	50/60	1-2		6	2-3	6.0†	0-240	.68†
	CW	240	50/60	1-2		6	1-3	6.0	0-240	1.4

FOOTNOTES { †Maximum output current at output voltages up to 150 volts. At higher output voltages, output current must be reduced according to rating curve Figure A on page 76.
+Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure A on page 76.

OUTLINE DIMENSIONS FOR TYPES X-116, X-216 and X-1126, X-1226



POWERSTAT® variable transformers

VOLTBOX a-c power supplies type UC1M and UC2M are compact, versatile test instruments for chemical, physical, electrical and other laboratories, the factory inspection department and the plant. The VOLTBOX contains all the necessary components required for tests involving variable a-c voltage. Included in the cast aluminum case are a carrying handle, POWERSTAT, direct reading voltmeter, three output receptacles, two SUPERIOR 5-WAY Binding Posts, "on-off" switch, line-load meter switch, renewable fuse and a six foot cord-plug.

TYPES UC1M AND UC2M

Type UC1M operates from a 120 volt, 50 60 cycle single phase source and has a 0-140 volt, 7.5 ampere output. Type UC2M is rated 240 volts, 50 60 cycles single phase input with a 0-280 volt, 3.0 ampere output.

After connecting the input cord-plug to any convenient receptacle of the proper voltage and frequency and turning the "on-off" switch to "ON", rotation of the knob will deliver the rated output voltage to any or all of the output receptacles and to the insulated binding posts. The line-load meter switch is placed on "LINE" to read the line voltage and on "LOAD" to read the load voltage. These readings can be taken at any time without disturbing the test or operation being performed.

The electrical characteristics shown in Figures B, C, D and E on pages 24 and 25 for POWERSTAT type 116 are the same for VOLTBOX type UC1M and those for POWERSTAT type 216 are the same for VOLTBOX type UC2M. The standard dial and angle of rotation from zero to maximum output voltage is shown in Figure A. The d-c resistance is 0.9 ohms for a type UC1M coil and 6.5 ohms for a type UC2M coil. Each type has a no-load loss of 6.5 watts at 60 cycles.

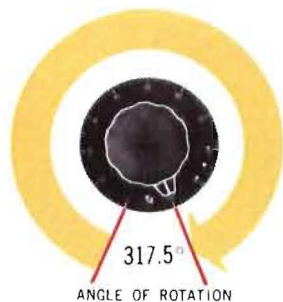
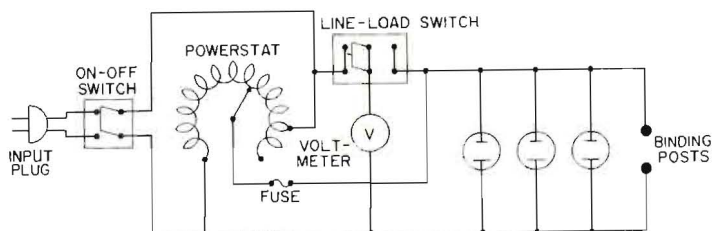
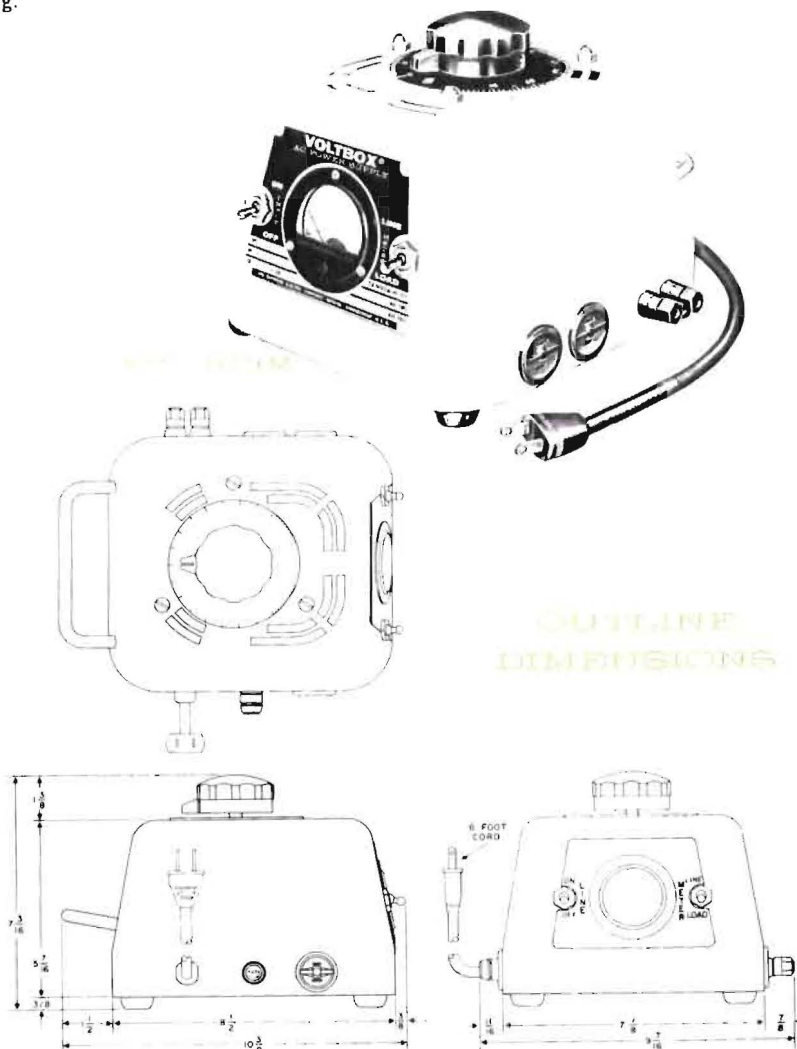


FIGURE A



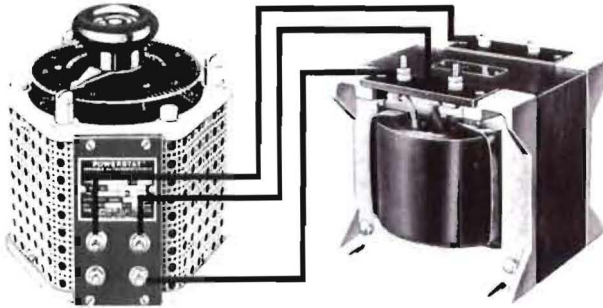
INTERNAL WIRING

LIMITED RANGE

Limited Range Output
Higher KVA - Lower Cost

POWERSTAT® variable transformers

Most voltage control applications require POWERSTATS which deliver a full working range of zero to maximum output voltage. However, there are certain applications which require control over a limited range of output voltage only. An example would be apparatus operating from a 120 volt, 50/60 cycle source with a required output voltage range that did not vary below 105 volts nor higher than 135 volts. The use of a manually-operated or motor-driven limited range POWERSTAT for such an application permits a smaller and more economical POWERSTAT at a lower cost per KVA.



TYPE 2108LC



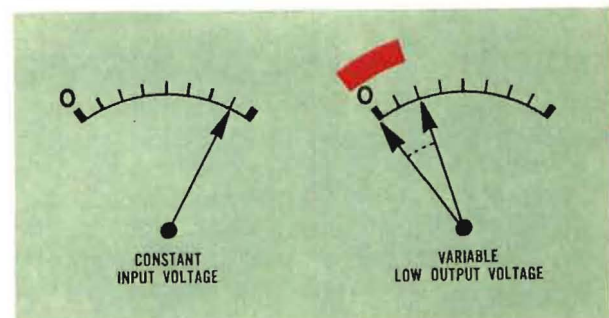
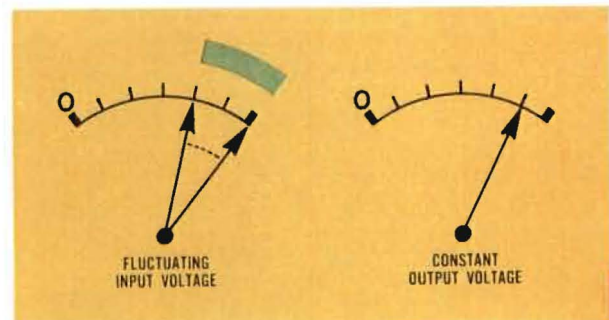
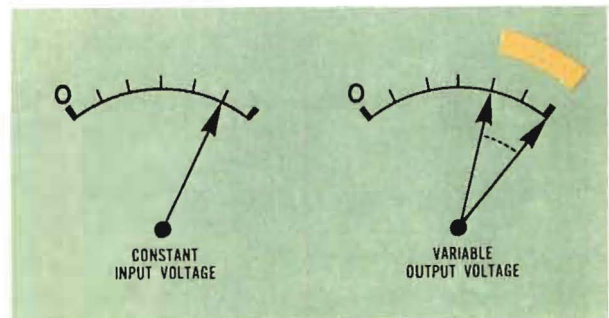
TYPE LW136

LINE VOLTAGE CORRECTORS

When a requirement does not demand automatic voltage regulation, satisfactory control over line voltage variations can be achieved by the use of a manually-operated or motor-driven limited range POWERSTAT. An example would be an application where input voltages customarily vary between 95 to 135 volts during certain periods of the day. A line corrector would buck or boost the input voltage to maintain a constant output voltage.

Manually-operated and motor-driven POWERSTATS of the LW136 series and the Line Corrector series are offered to meet these requirements. Types in both series can be used to perform either of these functions. POWERSTATS of the LW136 series are double wound assemblies having an isolated secondary winding on a single core. Types in the LW136 series are available for use on 120, 240 and 480 volt, 60 and 50/60 cycle, single and three phase service. Output ratings range from 0.52 to 2.6 KVA when used as low output voltage adjustable transformers with isolated secondaries and 4.2 to 30.9 KVA when used as limited range transformers or line voltage correctors.

POWERSTATS of the Line Corrector series consist of a variable transformer used in conjunction with one or more fixed-ratio stepdown transformers. They are for use on 115, 230 and 460 volt, 50 60 cycle, single and three phase service for ratings from 6.0 to 100.0 KVA.



POWERSTAT® variable transformers

POWERSTATS of the LW136 series are double wound assemblies having an isolated secondary winding. Connections can be made for operation as a source of adjustable low output voltage, a line voltage corrector or a limited range variable transformer. The primary consists of two windings arranged for either parallel or series connection. All units of the LW136 series have enclosed construction for bench, wall or panel mounting. The ratings given in this catalog are fundamental ratings that are used most frequently. There are actually more than 200 different ratings possible.

Coil to terminal wiring for POWERSTATS of the LW136 series is shown in Figure A. As shown in Figure B, all types have the 5-13/16 inch standard dial graduated 0-100 and an angle of rotation of 316° from zero to maximum output voltage. For additional flexibility, all types can be connected for either clockwise or counterclockwise knob rotation. All types are of enclosed construction and can be bench, wall or back-of-panel mounted. Changes from bench or wall to panel mounting can be easily made for single units because the free-mounted shaft can be quickly adjusted for either type mounting. Connections are made to the terminals at the front of the unit. The d-c resistance is 0.6 ohms for each primary winding and 0.04 ohms for the secondary winding. The maximum core and brush loss in watts when operating under no load and the driving torque are given in the chart. Self-lubricating nylon shaft bearings provide smooth turning, more dependable service and longer life.

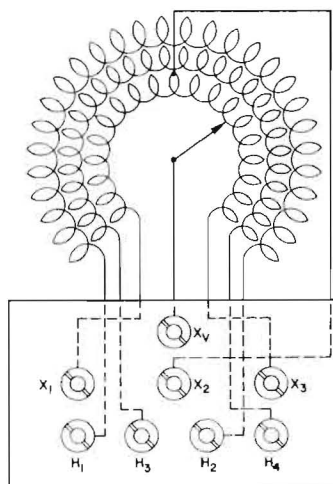


FIGURE A

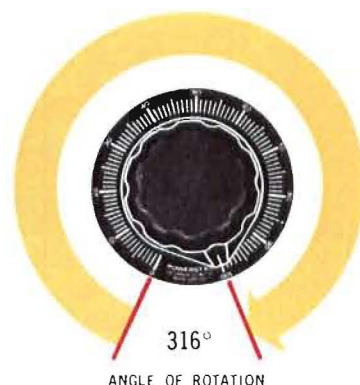


FIGURE B

TYPE	Approximate Driving-Torque (Dunce-Inches)	No-Load Loss at 60 Cycles (Watts)
LW136	30-50	9.0
LW136-2	70-90	18.0
LW136-3	110-140	27.0

TYPE LW136

When used as a low output voltage adjustable transformer with an isolated secondary, type LW136 has an output of either 15-0-15 volts, 35.0 amperes or 0-30 volts, 25.0 amperes from a 120 or 240 volt, 50, 60 cycle single phase input.

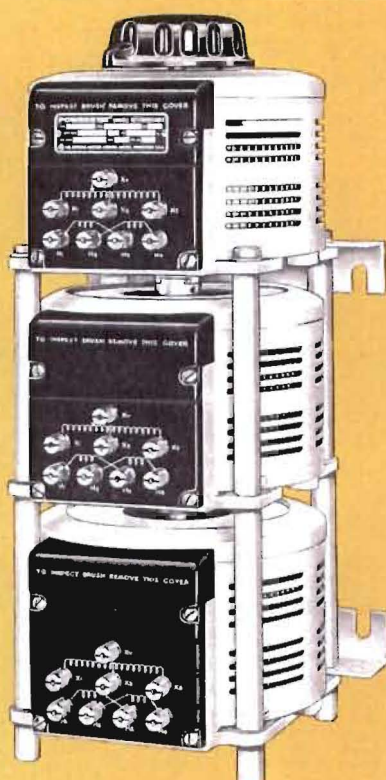
When used as a limited range transformer on 50/60 cycle single phase lines, it has an output of 105-135 volts, 35.0 amperes from a 120 volt source or a 225-255 volt, 35.0 ampere output from a 240 volt input. When used as a line voltage corrector on 60 cycle single phase lines, type LW136 will maintain an output of 120 volts, 35.0 amperes from an input of 107-137 volts or an output of 240 volts, 35.0 amperes from an input of 226-256 volts.



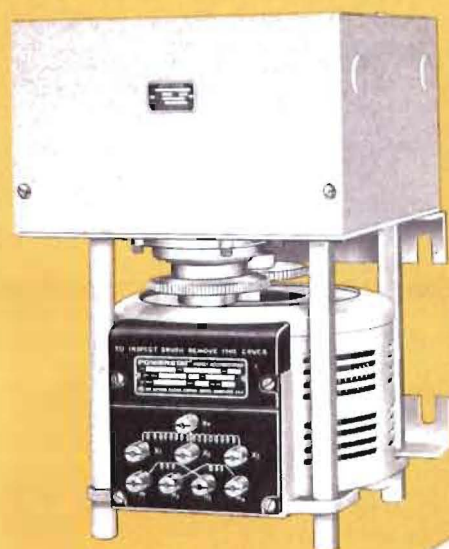
TYPE LW136



TYPE LW136-2



TYPE LW136-3



TYPE
15MBLW136

TYPE
LW136T



TYPES LW136-2 and LW136-3

These POWERSTATs are two and three gang assemblies for increased single phase and for wye or delta connected three phase service. They are used on 120, 240 or 480 volt lines. Ganged POWERSTATs of the LW136 series may be connected as low output voltage adjustable transformers with an isolated secondary, as limited range transformers or as line correctors.

MOTOR-DRIVEN TYPES

POWERSTATs of the LW136 series are available with motor-drives in standard speeds of 5, 15, 30 and 60 seconds for full range travel. Motor-driven POWERSTATs of the LW136 series and their corresponding manually-operated types have identical electrical ratings. When ordering motor-driven POWERSTATs, the type number is prefixed with the desired motor speed and the letters MB. For example: 60MBLW136-2.

TERMINAL ENCLOSED (T) TYPES

If desired, all manually-operated and motor-driven types are available with the terminal boards enclosed in metal terminal boxes. Knockouts in the terminal enclosures permit wiring with BX or equivalent. When ordering terminal enclosed assemblies, the series designation in the type number is followed by the letter T. For example: LW136T-3.

POWERSTAT® variable transformers



TYPE
LW136



TYPE
LW136T



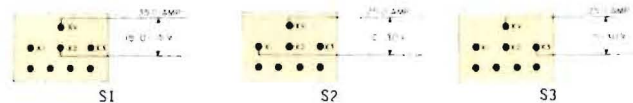
TYPE
15MBLW136

CONNECTION DIAGRAMS FOR LOW VOLTAGE ISOLATED OUTPUT TRANSFORMERS

PRIMARY CONNECTIONS



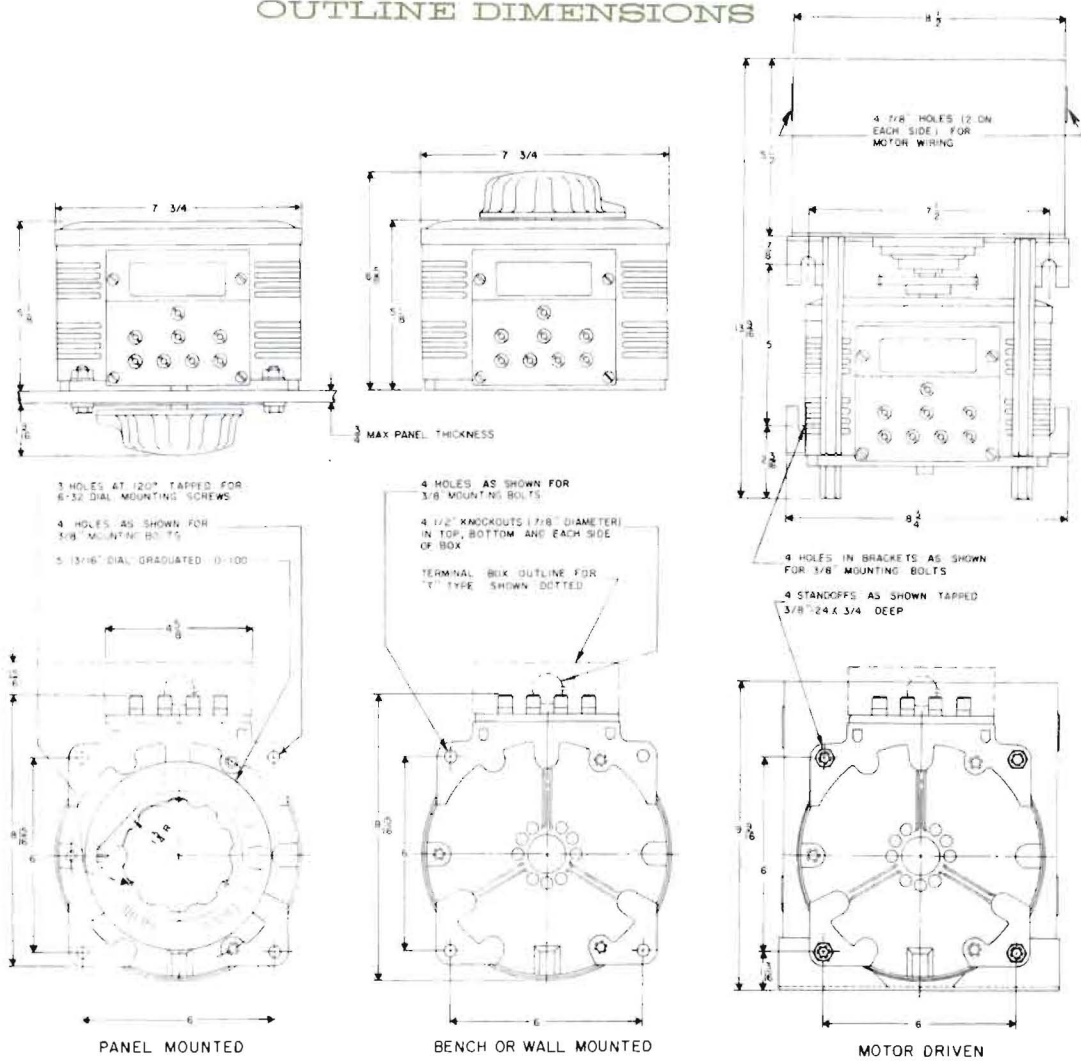
SECONDARY CONNECTIONS



CONNECTION DIAGRAMS FOR LIMITED RANGE TRANSFORMERS AND LINE CORRECTORS



OUTLINE DIMENSIONS



RATINGS

PHASE	INPUT		OUTPUT			BENCH OR WALL MOUNTING†		PANEL MOUNTING‡	
	VOLTS	CYCLES	VOLTS	MAX. AMPS.	MAX. KVA	CONNECTIONS* PRIMARY	CONNECTIONS* SECONDARY	CONNECTIONS* PRIMARY	CONNECTIONS* SECONDARY
SINGLE PHASE	USED AS LOW VOLTAGE TRANSFORMERS WITH ISOLATED SECONDARIES								
	120	50/60	15-0-15	35.0	0.52	P1	S1	P1	S1
		50 60	0-30	25.0	0.75	P1	S2	P1	S3
	240	50/60	15-0-15	35.0	0.52	P2	S1	P2	S1
		50 60	0-30	25.0	0.75	P2	S2	P2	S3
	USED AS LIMITED RANGE TRANSFORMERS								
	120	50 60	105-135	35.0	4.7	CONNECTION*		CONNECTION*	
						T1	T2		
	240	50 60	225-255	35.0	8.9	T3	T4		
	USED AS LINE CORRECTORS								
107-137	60	120	35.0	4.2	T1		T2		
226-256	60	240	35.0	8.4	T3		T4		

FOOTNOTES

*Rotation is clockwise to raise output voltage. For counterclockwise rotation to increase output voltage on panel mounted units, use the connections given for bench or wall mounting; for counterclockwise rotation of bench or wall mounted units, use the panel mounting connections.

†Motor-driven types are bench or wall mounted, cw rotation only.

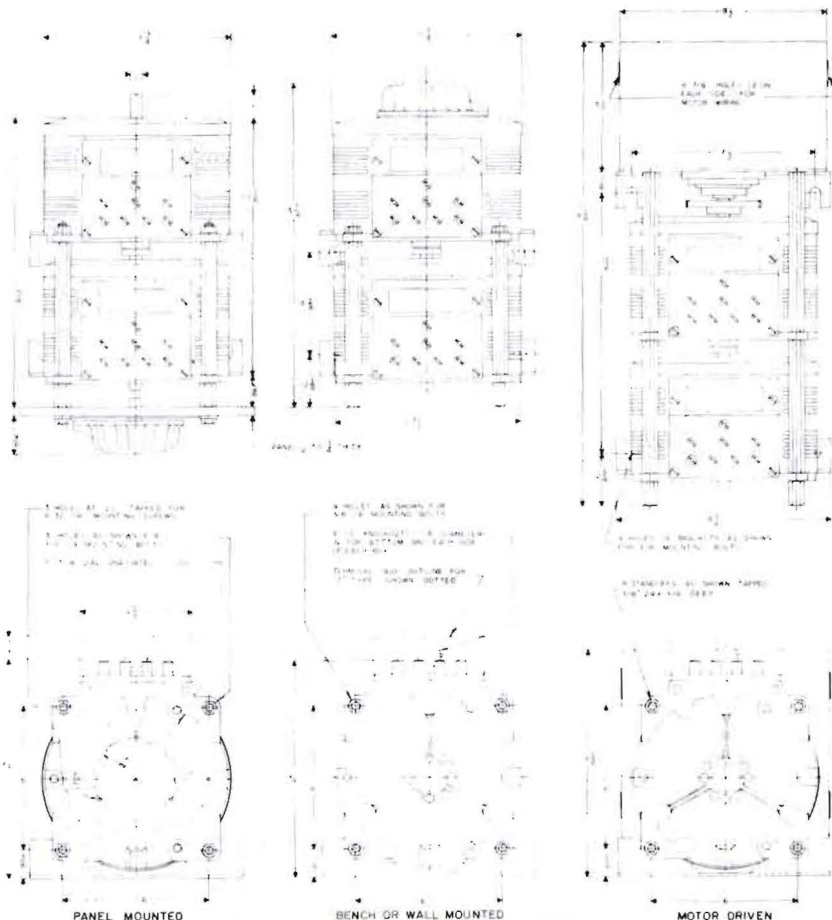
POWERSTAT® variable transformers



TYPE LW136-2



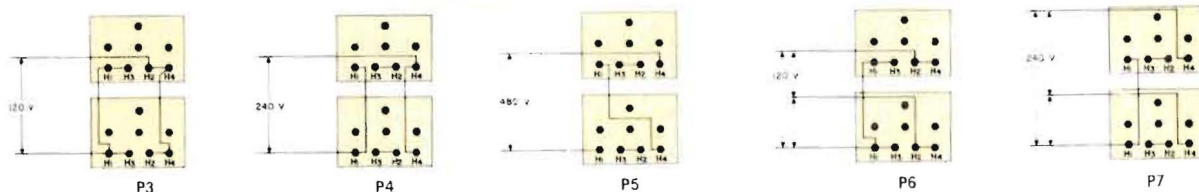
TYPE 15MBLW136-2



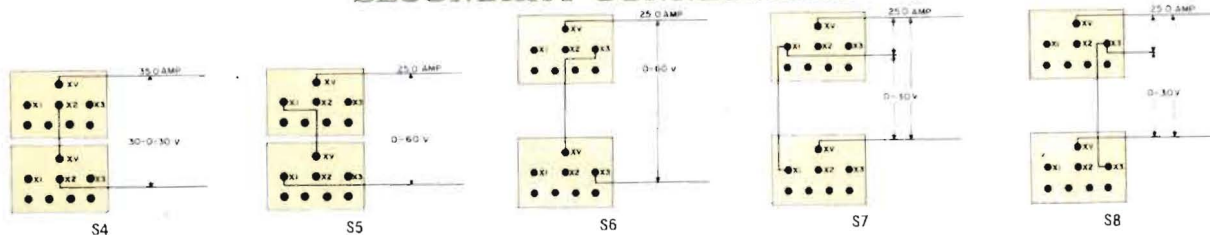
OUTLINE DIMENSIONS

CONNECTION DIAGRAMS FOR LOW VOLTAGE ISOLATED OUTPUT TRANSFORMERS

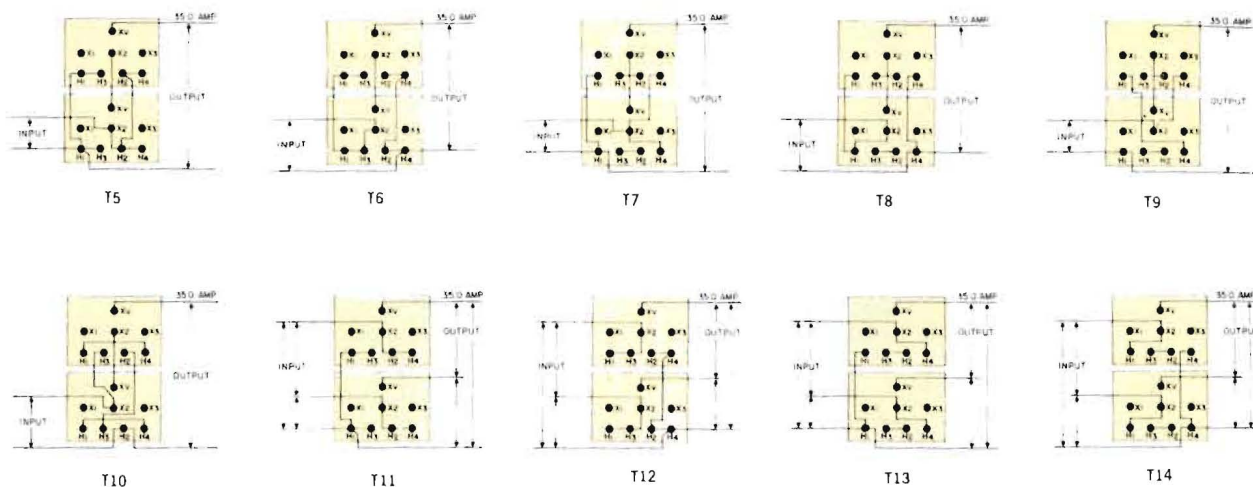
PRIMARY CONNECTIONS



SECONDARY CONNECTIONS



CONNECTION DIAGRAMS FOR LIMITED RANGE TRANSFORMERS AND LINE CORRECTORS



RATINGS

PHASE	INPUT		OUTPUT			BENCH OR WALL MOUNTING†		PANEL MOUNTING†	
	VOLTS	CYCLES	VOLTS	MAX. AMPS	MAX. KVA	CONNECTIONS* PRIMARY	CONNECTIONS* SECONDARY	CONNECTIONS* PRIMARY	CONNECTIONS* SECONDARY
SINGLE PHASE	USED AS LOW VOLTAGE TRANSFORMERS WITH ISOLATED SECONDARIES								
	120	50/60	30-0-30	35.0	1.0	P3	S4	P3	S4
		50/60	0-60	25.0	1.5	P3	S5	P3	S6
	240	50/60	30-0-30	35.0	1.0	P4	S4	P4	S4
		50/60	0-60	25.0	1.5	P4	S5	P4	S6
	480	50/60	30-0-30	35.0	1.0	P5	S4	P5	S4
		50/60	0-60	25.0	1.5	P5	S5	P5	S6
	USED AS LIMITED RANGE TRANSFORMERS								
	120	50/60	90-150	35.0	5.2	CONNECTION*		CONNECTION*	
						T5		T6	
THREE PHASE	240	50/60	210-270	35.0	9.4	CONNECTION*		CONNECTION*	
						T7		T8	
	480	50/60	450-510	35.0	17.8	CONNECTION*		CONNECTION*	
						T9		T10	
	USED AS LINE CORRECTORS								
	214-274	60	240	35.0	8.4	CONNECTION*		CONNECTION*	
						T7		T8	
	452-512	60	480	35.0	16.8	CONNECTION*		CONNECTION*	
						T9		T10	
	USED AS LOW VOLTAGE TRANSFORMERS WITH ISOLATED SECONDARIES								
	120	50/60	0-30	25.0	1.3	P6	S7	P6	S8
	240	50/60	0-30	25.0	1.3	P7	S7	P7	S8
	USED AS LIMITED RANGE TRANSFORMERS								
	120	50/60	105-135	35.0	8.2	CONNECTION*		CONNECTION*	
						T11		T12	
	240	50/60	225-255	35.0	15.5	CONNECTION*		CONNECTION*	
						T13		T14	
	USED AS LINE CORRECTORS								
	107-137	60	120	35.0	7.3	CONNECTION*		CONNECTION*	
						T11		T12	
	226-256	60	240	35.0	14.6	CONNECTION*		CONNECTION*	
						T13		T14	

FOOTNOTES { *Rotation is clockwise to raise output voltage. For counterclockwise rotation to increase output voltage on panel mounted units, use the connections given for bench or wall mounting; for counterclockwise rotation of bench or wall mounted units, use the panel mounting connections.
†Motor-driven types are bench or wall mounted, cw rotation only.

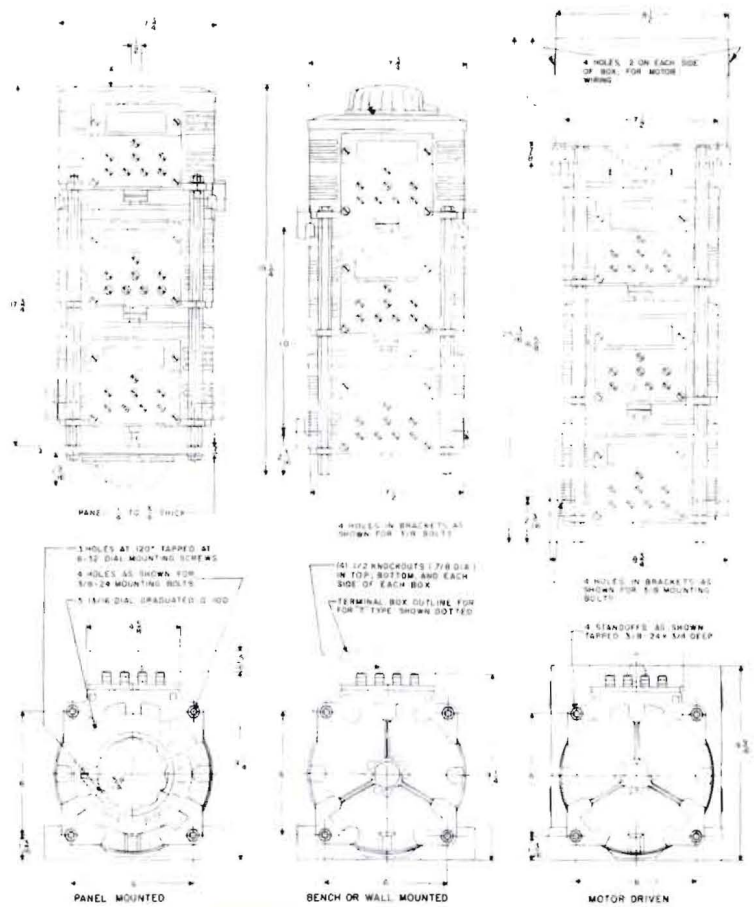
POWERSTAT® variable transformers



TYPE
LW136-3



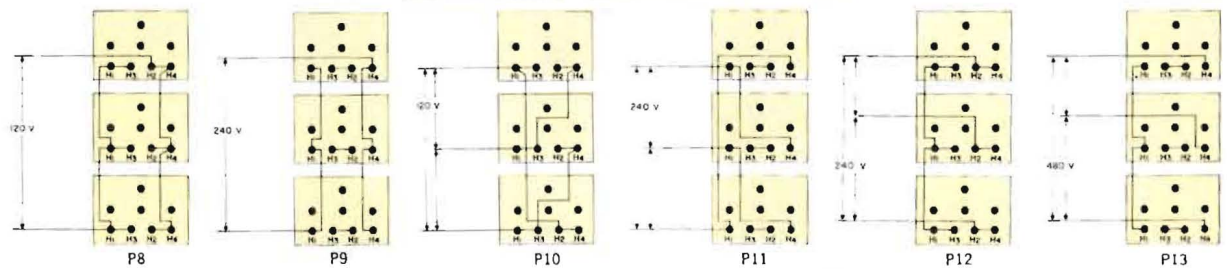
TYPE
15MBLW136-3



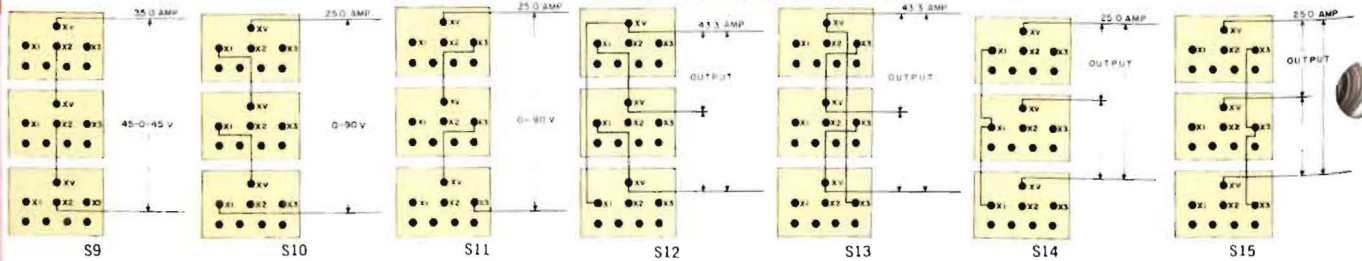
OUTLINE DIMENSIONS

CONNECTION DIAGRAMS FOR LOW VOLTAGE ISOLATED OUTPUT TRANSFORMERS

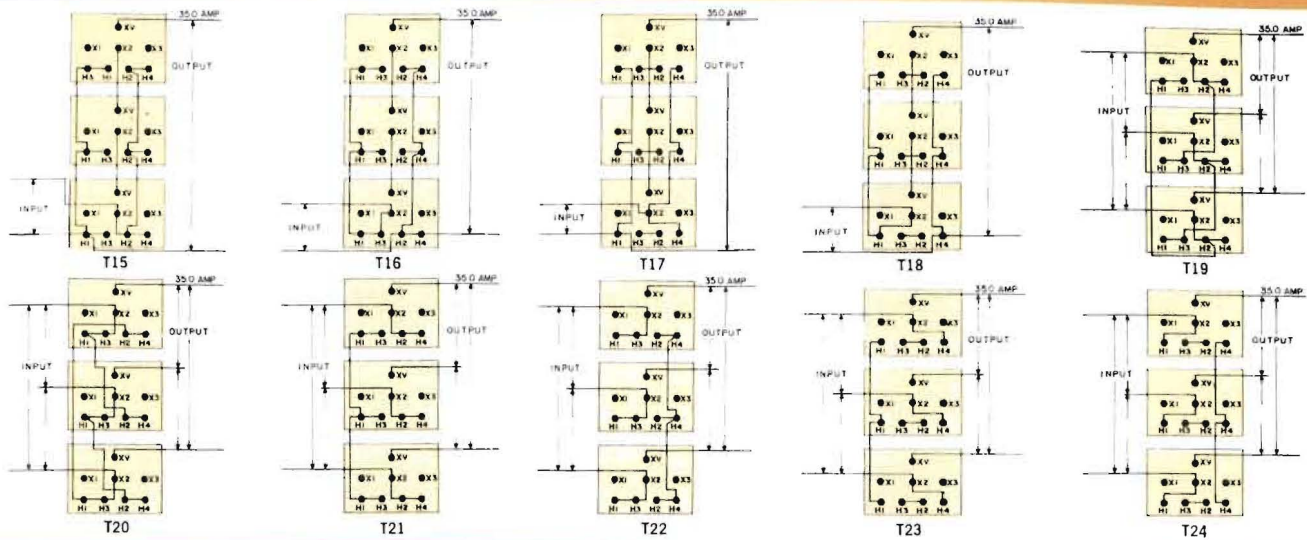
PRIMARY CONNECTIONS



SECONDARY CONNECTIONS



CONNECTION DIAGRAMS FOR LIMITED RANGE TRANSFORMERS AND LINE CORRECTORS



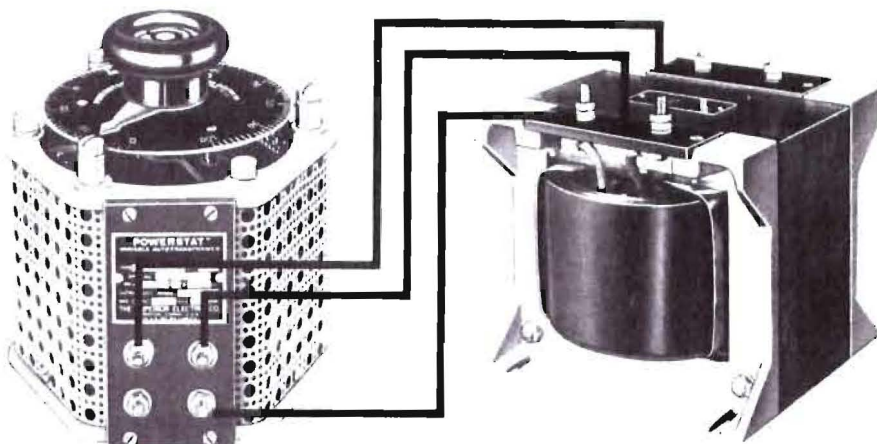
RATINGS

PHASE	INPUT		OUTPUT			BENCH OR WALL MOUNTING†		PANEL MOUNTING†	
	VOLTS	CYCLES	VOLTS	MAX. AMPS.	MAX. KVA	CONNECTIONS* PRIMARY SECONDARY		CONNECTIONS* PRIMARY SECONDARY	
SINGLE PHASE	USED AS LOW VOLTAGE TRANSFORMERS WITH ISOLATED SECONDARIES								
	120	50/60	45-0-45	35.0	1.6	P8	S9	P8	S9
		50/60	0-90	25.0	2.2	P8	S10	P8	S11
	240	50/60	45-0-45	35.0	1.6	P9	S9	P9	S9
		50/60	0-90	25.0	2.2	P9	S10	P9	S11
	USED AS LIMITED RANGE TRANSFORMERS								
	120	50/60	75-165	35.0	5.8	CONNECTION* T15		CONNECTION* T16	
		240	50/60	195-285	35.0	10.0	T17		T18
	USED AS LINE CORRECTORS								
	202-295	60	240	35.0	8.4	T17		T18	
THREE PHASE	USED AS LOW VOLTAGE TRANSFORMERS WITH ISOLATED SECONDARIES								
	120	50/60	0-30	43.3	2.2	P10	S12	P10	S13
		50/60	0-52	25.0	2.2	P10	S14	P10	S15
	240	50/60	0-30	43.3	2.2	P11	S12	P11	S13
		60	0-35	43.3	2.6	P12	S12	P12	S13
		50/60	0-52	25.0	2.2	P11	S14	P11	S15
		60	0-60	25.0	2.6	P12	S14	P12	S15
	480	60	0-35	43.3	2.6	P13	S12	P13	S13
		60	0-60	25.0	2.6	P13	S14	P13	S15
	USED AS LIMITED RANGE TRANSFORMERS								
	120	50/60	98-142	35.0	8.6	CONNECTION* T19		CONNECTION* T20	
	240	60	210-270	35.0	16.4	T21		T22	
	480	60	450-510	35.0	30.9	T23		T24	
	USED AS LINE CORRECTORS								
	102-146	60	120	35.0	7.3	T19		T20	
	219-264	60	240	35.0	14.6	T21		T22	
	452-512	60	480	35.0	29.1	T23		T24	
FOOTNOTES		{ *Rotation is clockwise to raise output voltage. For counterclockwise rotation to increase output voltage on panel mounted units, use the connections given for bench or wall mounting; for counterclockwise rotation of bench or wall mounted units, use the panel mounting connections. †Motor-driven types are bench or wall mounted, cw rotation only.							

POWERSTAT LINE CORRECTORS

A **POWERSTAT** Line Corrector is used to correct line voltage variations to maintain a constant output voltage or to supply a limited range of output voltage from a stable a-c source. It consists of an appropriately tapped **POWERSTAT** variable transformer and one or more fixed-ratio step-down transformers. Manually-operated and motor-driven types are available for nominal 115, 230 and 460 volt, 50/60 cycle, single and three phase service.

The use of a variable transformer in conjunction with a fixed-ratio transformer permits the control of relatively large amounts of current. To illustrate: **POWERSTAT** type 1156C which is similar to the variable transformer component of Line Corrector type 2115LC has a current rating of 45.0 amperes. When used in conjunction with the fixed-ratio transformer, 130.0 amperes can be controlled.



single phase

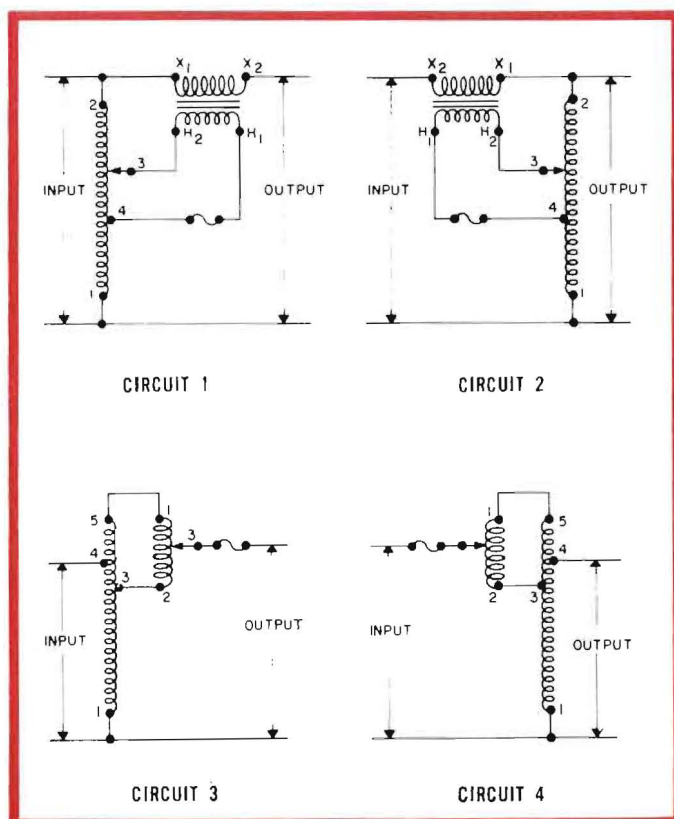
TYPES 2106LC and 2115LC When used as a line corrector (Circuit 1) on a 95-135 volt input with an output of 115 volts or as a limited range transformer (Circuit 2) on a 115 volt input with an output of 95-135 volts, the ratings are 52.0 amperes for type 2106LC and 130.0 amperes for type 2115LC.

TYPES 2207LC and 2228LC When used as a line corrector (Circuit 1) on a 195-255 volt input with an output of 230 volts or as a limited range transformer (Circuit 2) on a 230 volt input with an output of 195-255 volts, the ratings are 32.5 amperes for type 2207LC and 120 amperes for types 2228LC.

TYPE 2407LC Has a rating of 15.0 amperes when used as a line corrector (Circuit 3) on a 400-520 volt input with an output of 460 volts or as a limited range transformer (Circuit 4) on a 460 volt input with an output of 400-520 volts.

TYPE 2418LC Has a rating of 40.0 amperes when used as a line corrector (Circuit 4) on a 400-520 volt input with an output of 460 volts or as a limited range transformer (Circuit 3) on a 460 volt input with an output of 400-520 volts.

TYPE 2106LC



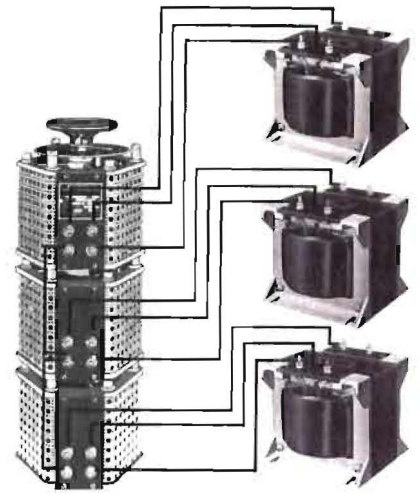
three phase

TYPES 3210YLC, 3215YLC, 3220YLC, 3245YLC and 3270DLC When used as a line corrector on a 195-255 volt input with an output of 230 volts or as a limited range transformer on a 230 volt input with an output of 195-255 volts, the ratings are 25.0 amperes for type 3210YLC, 38.0 amperes for type 3215YLC, 50.0 amperes for type 3220YLC, 113.0 amperes for type 3245YLC and 175.0 amperes for type 3270DLC. Circuit 5 is the diagram for these types (except 3270DLC) when used as line correctors and Circuit 6 is the diagram when used as limited range transformers. Circuit 7 is the diagram for type 3270DLC when used as a line corrector and Circuit 8 is the diagram when used as a limited range transformer.

TYPES 3412YLC, 3417YLC, 3425YLC, 3450YLC and 3475YLC When used as a line corrector as shown in Circuit 5 on a 400-520 volt input with an output of 460 volts or as a limited range transformer as shown in Circuit 6 on a 460 volts or as a limited range transformer on a 460 volt input with an output of 400-520 volts, the ratings are 16.0 amperes for type 3412YLC; 22.0 amperes for type 3417YLC; 33.0 amperes for type 3425YLC; 66.0 amperes for type 3450YLC; and 100.0 amperes for type 3475YLC.

TYPE 34100YLC When used as a line corrector as shown in Circuit 5 on a 420-500 volt input with an output of 460 volts or as a limited range transformer as shown in Circuit 6 on a 460 volt input with an output of 420-500 volts, type 34100YLC has a rating of 131.0 amperes.

MOTOR-DRIVEN TYPES With the exception of type 3270DLC which does not have the 5 second motor-drive speed, POWERSTATS of the Line Corrector series are available with motor-drives in standard speeds of 5, 15, 30 and 60 seconds for full range travel. Motor-driven POWERSTAT Line Correctors and their corresponding manually-operated types have identical electrical ratings. When ordering motor-driven types, the type number must be prefixed with the speed in seconds and the letter M. For example: 15M3475YLC.



TYPE 3215YLC

Figures A, B and C show the standard knob or wheel, dial and angle of rotation for each type in the Line Corrector series.

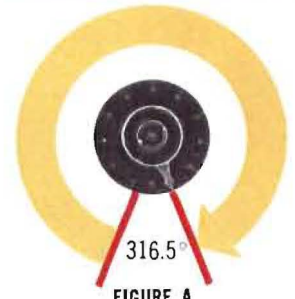


FIGURE A

TYPES { 2106LC
2207LC
2407LC



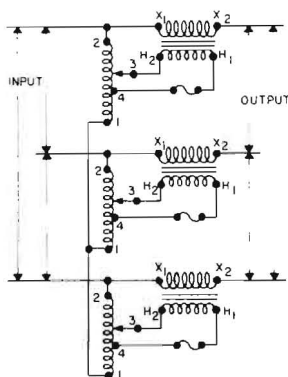
FIGURE B

TYPES { 3210YLC 3412YLC
3215YLC 3417YLC
3220YLC 3425YLC

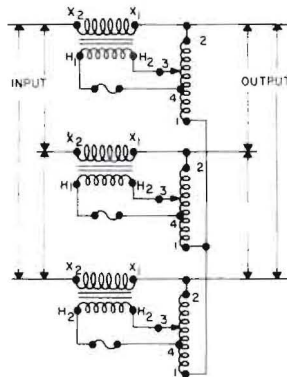


FIGURE C

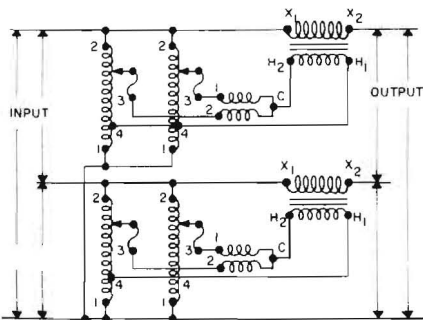
TYPES { 2115LC 3270DLC
2228LC 3450YLC
2418LC 3475YLC
3245YLC 34100YLC



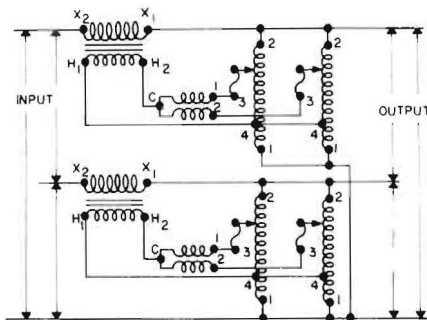
CIRCUIT 5



CIRCUIT 6

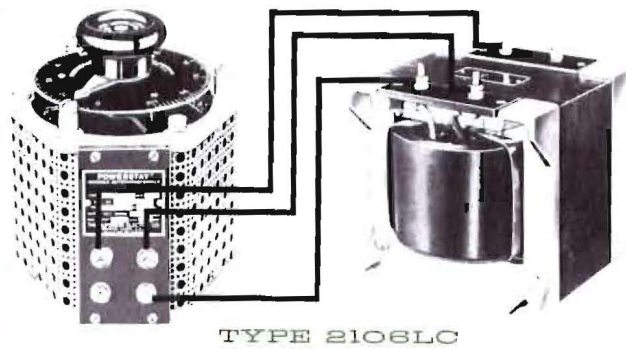


CIRCUIT 7

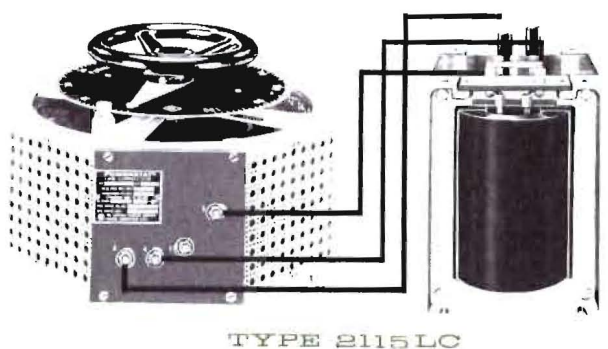


CIRCUIT 8

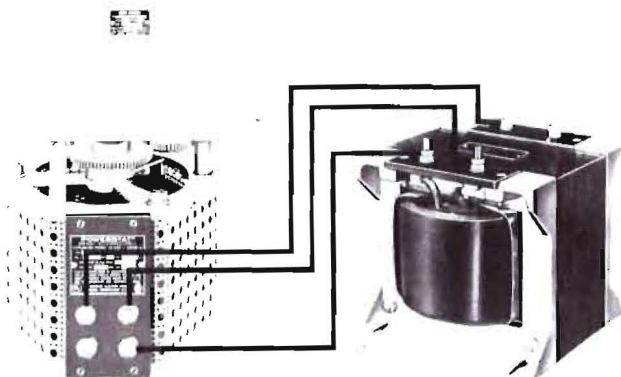
POWERSTAT® variable transformers



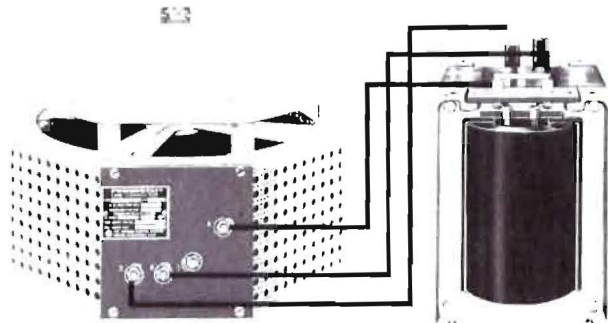
TYPE 2106LC



TYPE 2115LC



TYPE 15M2106LC



TYPE 5M2115LC

USED AS LINE CORRECTORS

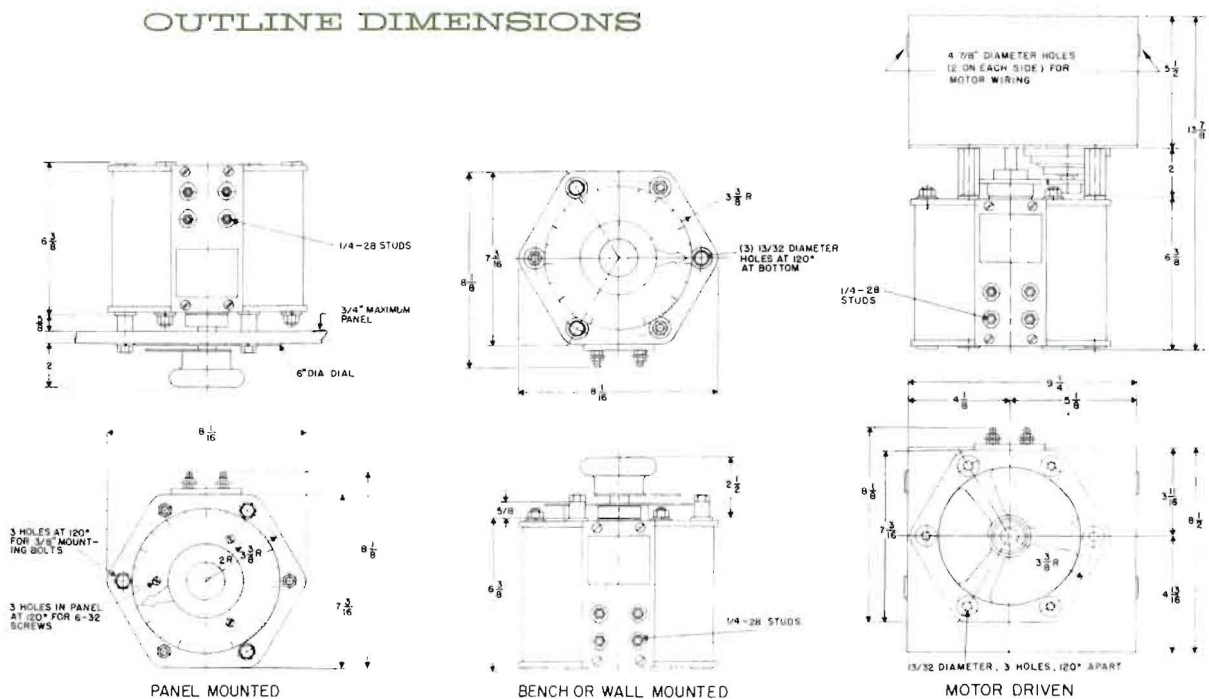
TYPE	KNOB ROTATION	INPUT		Page 90 CIRCUIT	RECOM- MENDED FUSE (AMPS.)	OUTPUT		
		VOLTS	CYCLES			MAX. AMPS.	VOLTS	MAX. KVA
2106LC	CW	95-135	50/60	1	15	52.0	115	6.0
2115LC	CW	95-135	50/60	1	40	130.0	115	15.0
2207LC	CW	195-255	50/60	1	10	32.5	230	7.5
2228LC	CW	195-255	50/60	1	30	120.0	230	27.5
2407LC	CW	400-520	50/60	3	15	15.0	460	6.6
2418LC	CW	400-520	50/60	4	45*	40.0	460	17.6

USED AS LIMITED RANGE TRANSFORMERS

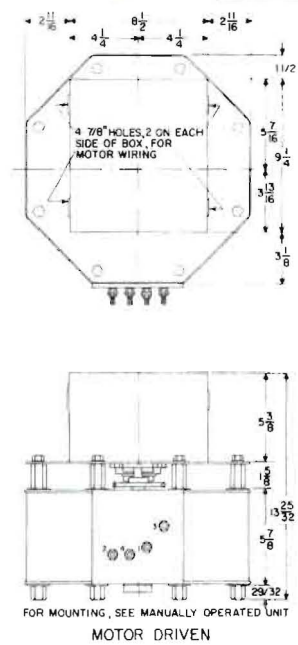
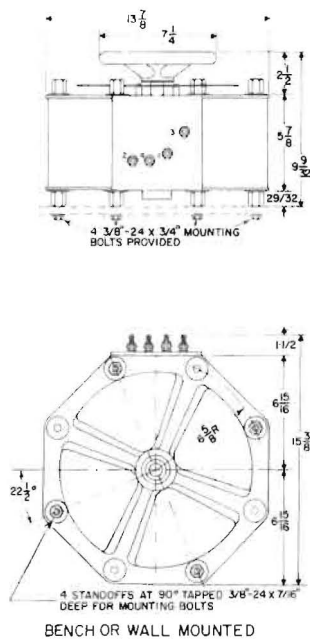
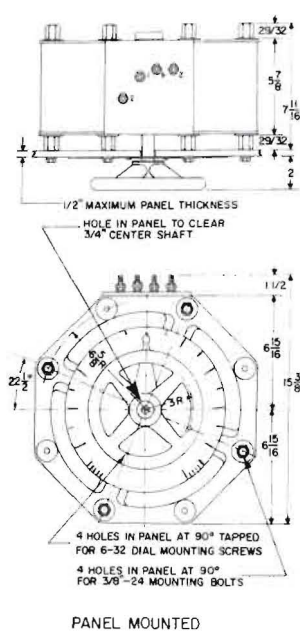
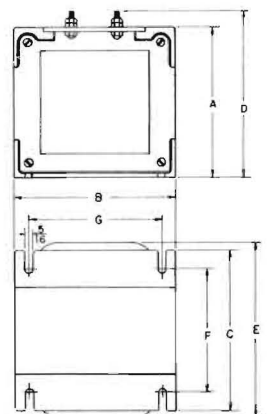
TYPE	KNOB ROTATION	INPUT		MAX. AMPS.	Page 90 CIRCUIT	RECOM- MENDED FUSE (AMPS.)	OUTPUT	
		VOLTS	CYCLES				VOLTS	MAX. KVA
2106LC	CCW	115	50/60	52.0	2	15	95-135	6.0
2115LC	CCW	115	50/60	130.0	2	40	95-135	15.0
2207LC	CCW	230	50/60	32.5	2	10	195-255	7.5
2228LC	CCW	230	50/60	120.0	2	30	195-255	27.5
2407LC	CCW	460	50/60	15.0	4	15	400-520	6.6
2418LC	CCW	460	50/60	40.0	3	45*	400-520	17.6

*Fuse supplied.

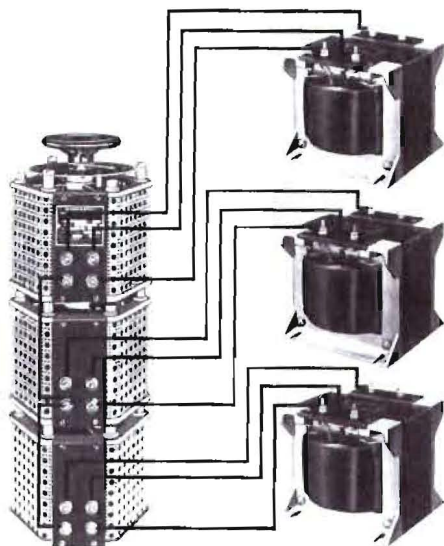
OUTLINE DIMENSIONS



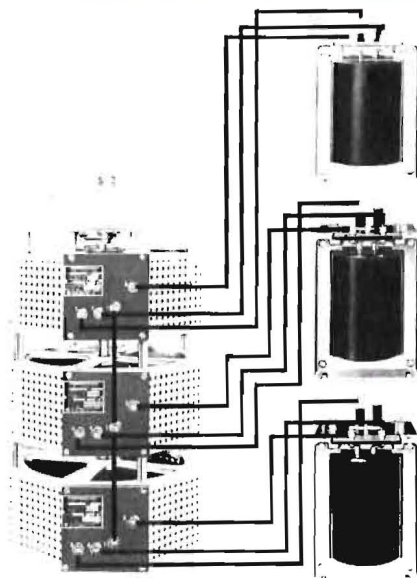
LINE CORRECTOR TYPE	DIMENSIONS OF FIXED-RATIO TRANSFORMERS							WEIGHT (POUNDS)
	A	B	C	D	E	F	G	
2106LC	6-3/16	7-1/16	6-7/8	7-3/16	7-1/2	5-1/8	5-9/16	45
2207LC	6-3/16	7-1/16	7-1/8	7-3/16	7-3/4	5-3/8	5-9/16	55
2407LC	6-3/16	7-1/16	8-1/8	7-3/16	8-3/4	6-3/8	5-9/16	50
2115LC	9-5/8	7-1/16	8-7/8	10-5/8†	9-1/2	7-1/8	5-1/2	105
2228LC	9-5/8	7-1/16	10-3/8	10-5/8†	11	8-5/8	5-1/2	136
2418LC	9-5/8	7-1/16	8-7/8	10-5/8	9-1/2	7-1/8	5-1/2	105
†Secondary (X ₁ and X ₂) terminals are bus bars with holes for terminal lugs.								



POWERSTAT® variable transformers



TYPE 3215YLC



TYPE 15M3475YLC

USED AS LINE CORRECTORS

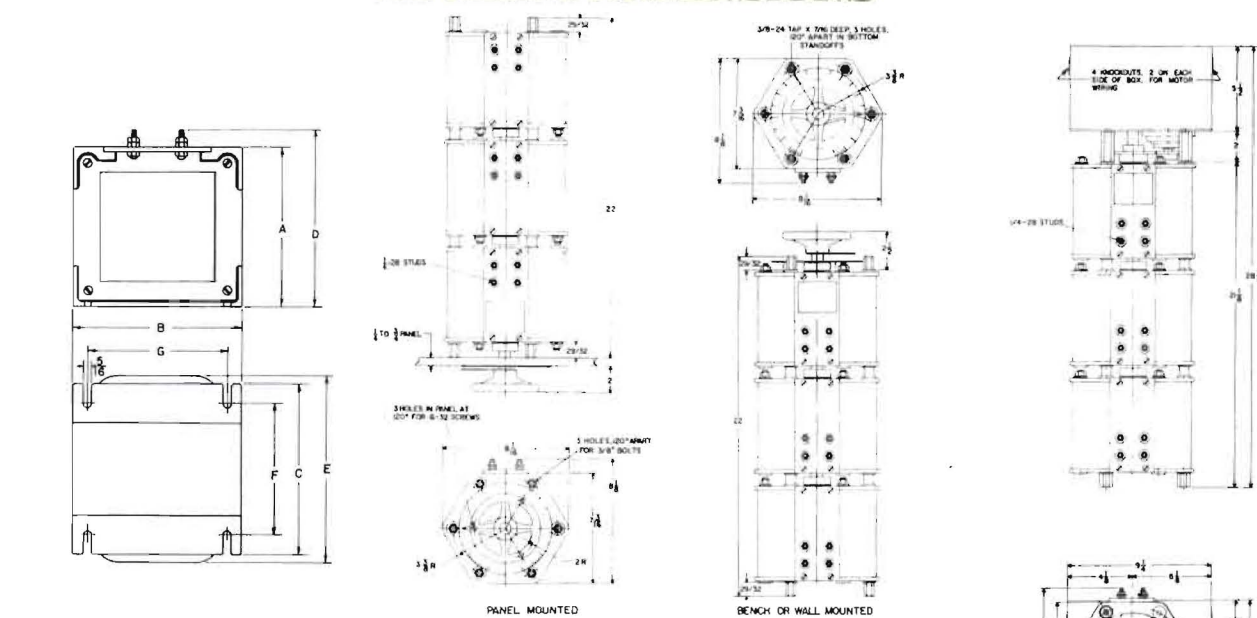
TYPE	KNOB ROTATION	INPUT		Page 91 CIRCUIT	RECOM- MENDED FUSE (AMPS.)	OUTPUT		
		VOLTS	CYCLES			MAX. AMPS.	VOLTS	MAX. KVA
3210YLC	CW	195-255	50/60	5	10	25.0	230	10.0
3215YLC	CW	195-255	50/60	5	10	38.0	230	15.0
3220YLC	CW	195-255	50/60	5	15	50.0	230	20.0
3245YLC	CW	195-255	50/60	5	40	113.0	230	45.0
3270DLC	CW	195-255	50/60	7	30*	175.0	230	70.0
3412YLC	CW	400-520	50/60	5	10	16.0	460	12.5
3417YLC	CW	400-520	50/60	5	6	22.0	460	17.5
3425YLC	CW	400-520	50/60	5	25	33.0	460	25.0
3450YLC	CW	400-520	50/60	5	30	66.0	460	50.0
3475YLC	CW	400-520	50/60	5	30	100.0	460	75.0
34100YLC	CW	420-500	50/60	5	30	131.0	460	100.0

USED AS LIMITED RANGE TRANSFORMERS

TYPE	KNOB ROTATION	INPUT		MAX. AMPS.	Page 91 CIRCUIT	RECOM- MENDED FUSE (AMPS.)	OUTPUT	
		VOLTS	CYCLES				VOLTS	MAX. KVA
3210YLC	CCW	230	50/60	25.0	6	10	195-255	10.0
3215YLC	CCW	230	50/60	38.0	6	10	195-255	15.0
3220YLC	CCW	230	50/60	50.0	6	15	195-255	20.0
3245YLC	CCW	230	50/60	113.0	6	40	195-255	45.0
3270DLC	CCW	230	50/60	175.0	8	30*	195-255	70.0
3412YLC	CCW	460	50/60	16.0	6	10	400-520	12.5
3417YLC	CCW	460	50/60	22.0	6	6	400-520	17.5
3425YLC	CCW	460	50/60	33.0	6	25	400-520	25.0
3450YLC	CCW	460	50/60	66.0	6	30	400-520	50.0
3475YLC	CCW	460	50/60	100.0	6	30	400-520	75.0
34100YLC	CCW	460	50/60	131.0	6	30	420-500	100.0

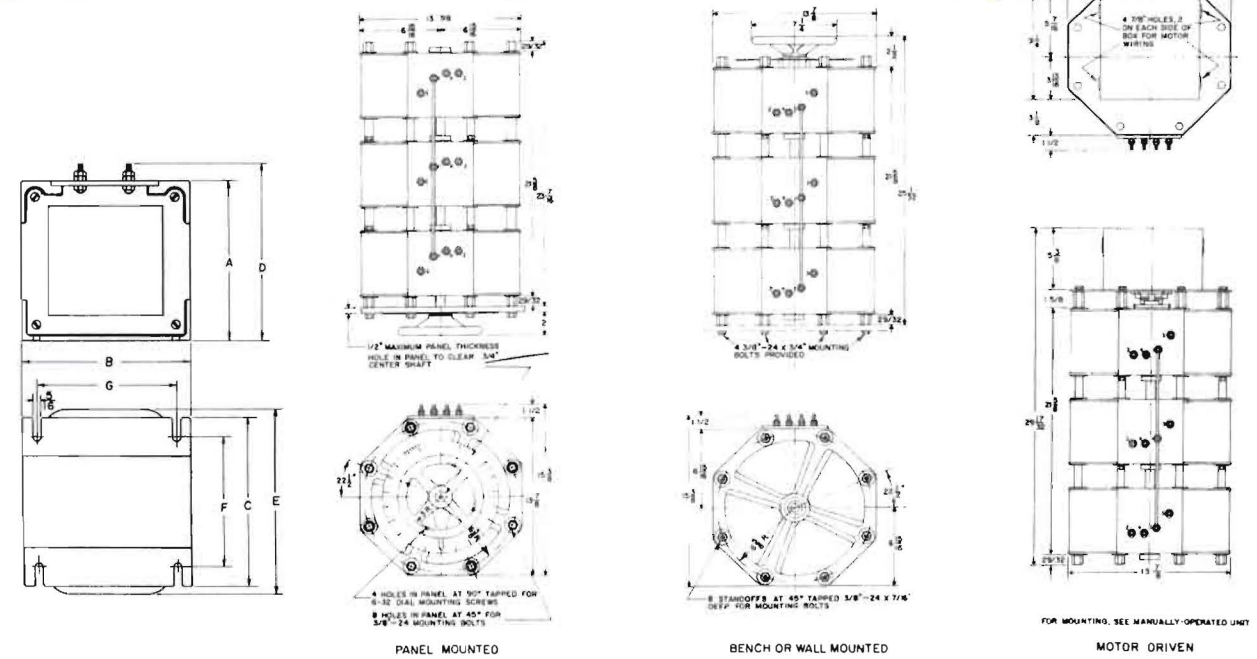
*Fuses supplied.

OUTLINE DIMENSIONS



LINE CORRECTOR TYPE	DIMENSIONS OF FIXED-RATIO TRANSFORMERS							WEIGHT EACH (POUNDS)	NUMBER REQUIRED
	A	B	C	D	E	F	G		
3210YLC 3215YLC 3220YLC	6-3/16	7-1/16	6-7/8	7-3/16	7-1/2	5-1/8	5-9/16	45	3
3412YLC 3417YLC	6-3/16	7-1/16	5-3/4	7-3/16	6-3/8	4	5-9/16	45	3
3425YLC	6-3/16	7-1/16	7-1/8	7-3/16	7-3/4	5-3/8	5-9/16	45	3
3245YLC	9-5/8	7-1/16	9-3/8	10-5/8†	10	7-5/8	5-1/2	120	3
3270DLC*	—	9-1/4	—	9-1/2	10-3/4	—	—	120	2
3450YLC	9-5/8	7-1/16	7-3/8	10-5/8	8	5-5/8	5-1/2	105	3
3475YLC 34100YLC	9-5/8	7-1/16	8-7/8	10-5/8†	9-1/2	7-1/8	5-1/2	105	3

FOOTNOTES { †Secondary (X₁ and X₂) terminals are bus bars with holes for terminal lugs.
 *For variable voltage component outline drawing see POWERSTAT Type 1256C-4D on page 60. Fixed ratio transformers do not conform to outline shown below.



HOW TO ORDER

POWERSTAT® variable transformers

SELECTING YOUR POWERSTAT

- 1** Determine the needs of the application with regard to input voltage, frequency and phase and output voltage range, current and KVA.
- 2** Ratings for air-cooled single phase types are given on pages 97 and 98; air-cooled three phase types are given on pages 99 and 100; limited range types are given on page 101; and Oil-cooled, Explosion-proof and Voltbox types are given on page 102.
- 3** Knowing your input voltage and frequency needs, select the POWERSTAT type which satisfies your load requirement. These are listed in order of increasing output current within the input voltage group.
- 4** Determine the POWERSTAT type or types which meet the output voltage and KVA requirements of the application.
- 5** Refer to the page or pages which give detailed technical data for the individual POWERSTATS.
- 6** Select the POWERSTAT best suited for the application.

Many POWERSTAT type numbers contain letter coding which identify certain characteristics of a particular unit:

D: Open-delta connected, three phase

EN: Enclosed type

F: Fused

L: Output limited to line voltage

LC: Line corrector type

M or MB (prefix): Motor-driven

M (suffix): Military

O: Oil-cooled type

P: Parallel connected, single phase

PF: Fused unit with standard parallel blade plug and receptacle

PN: Fused unit with NEMA standard type plug and receptacle

PS: Series-parallel connected, single phase

S: Series connected

T: Enclosed terminal type

TF: Fused unit with twist-lock type plug and receptacle

U: Open construction (116, 117, 216 and 217 series only)

X: Explosion-proof type

Y: Wye connected, three phase

ORDERING

MANUALLY-OPERATED TYPES:

If the selected POWERSTAT is manually-operated, the type number can be taken directly from the rating chart.

MOTOR-DRIVEN TYPES:

If the selected POWERSTAT is motor-driven, the type number must be prefixed with the desired motor speed in seconds and the letter M (MB on 136-236 and LW136 series types). For example: 15M1156C or 15MBLW136. Specify whether the motor is to be used on 50 or 60 cycle lines.

ELECTRICALLY INDEPENDENT (E) CONNECTION:

Although not listed in the rating charts, all ganged POWERSTATS may be connected so that each unit in the assembly is electrically independent but operates in unison with the others on a common shaft.

In the event that difficulty is experienced in determining the correct POWERSTAT for the application, experienced sales engineers are available for consultation and assistance. Although brush replacement is infrequently needed, it is suggested that at least one spare brush assembly be kept on hand as a maintenance precaution. Refer to page 102 to obtain the correct replacement brush number for the POWERSTAT ordered.

NOTE

The features and dimensions of POWERSTATS shown in this catalog are subject to changes based on engineering refinements. When dimensions are critical it is suggested that detailed drawings be obtained from the factory.

POWERSTAT® RATING CHART single phase

SINGLE UNITS OF THE 116-216 SERIES ARE AVAILABLE ALSO IN 3PF, 3PN AND 3TF TYPES WITH NO CHANGE IN RATINGS.
SINGLE UNITS OF THE 136-236 SERIES ARE AVAILABLE ALSO IN 2PF, 2TF, 3PF, 3PN AND 3TF TYPES WITH NO CHANGE IN RATINGS.
SINGLE AND 2-GANG UNITS OF THE 136-236 AND 1156C-1256C SERIES ARE AVAILABLE ALSO IN F AND T TYPES WITH NO CHANGE IN RATINGS.

INPUT		OUTPUT					MANUALLY OPERATED		MOTOR DRIVEN		
VOLTS	FREQUENCY (CYCLES)	VOLTS	MAX. AMPS.	MAX. KVA	TYPE	SEE PAGE	WEIGHT (POUNDS)		MOTOR SPEED (SECONDS)	WEIGHT (POUNDS)	
							NET	SHIPPING		NET	SHIPPING
120	60	0-132	1.0	.132	2PF10	16	3	3.3			
120	50/60	0-120	1.25	.150	10	17	1.8	2.1			
120	60	0-132	1.25	.165							
120	50/60	0-120	3.0	.36	20	21	4	5.5			
120	60	0-140	3.0	.42							
120	50/60	0-120	7.5	.90	116U	33	9	11			
120	50/60	0-140	7.5	1.0							
120	50/60	0-120	7.5	.90	Q116U	33	9	11			
120	50/60	0-140	7.5	1.0							
120	50/60	0-120	7.5	.90	116L	29	10	12			
120	50/60	0-120	7.5	1.0	116	29	10	12			
120	60	0-120	10.0§	1.6§	117U	33	9	11			
120	60	0-120	10.0§	1.6§	Q117U	33	9	11			
120	60	0-120	10.0§	1.6§							
120	60	0-120	10.0§	1.6§	117§§	29	10	12			
120	50/60	0-120	20.0	2.4	136	46	22	25	5, 15, 30, 60	42	59
120	50/60	0-140	20.0	2.8							
120	50/60	0-120	40.0	4.8	136-2**	48	47	52	5, 15, 30, 60	67	84
120	50/60	0-140	40.0	5.6							
120	50/60	0-120	45.0	5.4	1156CL	55	70	79	5, 15, 30, 60	91	103
120	50/60	0-140	45.0	6.3	1156C	55	70	79	5, 15, 30, 60	91	103
120	50/60	0-120	90.0	10.8	1156CL-2P†	57	144	160	5, 15, 30, 60	165	192
120	50/60	0-140	90.0	12.6	1156C-2P†	57	144	160	5, 15, 30, 60	165	192
120	50/60	0-120	135.0	16.2	1156CL-3P	59	221	280	5, 15, 30, 60	244	306
120	50/60	0-140	135.0	18.9	1156C-3P	59	221	280	5, 15, 30, 60	244	306
120	50/60	0-120	180.0	21.6	1156CL-4P	61	360	410	15, 30, 60	380	450
120	50/60	0-140	180.0	25.2	1156C-4P	61	360	410	15, 30, 60	380	450
120	50/60	0-120	270.0	32.4	1156CL-6P	63	515	615	15, 30, 60	535	640
120	50/60	0-140	270.0	37.8	1156C-6P	63	515	615	15, 30, 60	535	640
120	50/60	0-280	3.0*	.35‡	216U	33	9	11			
120	50/60	0-280	3.0*	.35‡	Q216U	33	9	11			
120	50/60	0-280	3.0*	.35‡							
120	50/60	0-280	3.0*	.35‡	216††	29	10	12			
120	50/60	0-280	9.0*	1.1‡	236††	46	22	25	5, 15, 30, 60	42	59
120	50/60	0-240	28.0*	3.2‡	1256CL††	55	70	79	5, 15, 30, 60	90	101
120	50/60	0-280	28.0*	3.3‡	1256C††	55	70	79	5, 15, 30, 60	90	101
120	50/60	0-240	56.0*	6.5‡	1256CL-2P†	57	144	160	5, 15, 30, 60	165	192
120	50/60	0-280	56.0*	6.6‡	1256C-2P†	57	144	160	5, 15, 30, 60	165	192
120	50/60	0-240	84.0*	9.7‡	1256CL-3P	59	221	280	5, 15, 30, 60	244	306
120	50/60	0-280	84.0*	9.9‡	1256C-3P	59	221	280	5, 15, 30, 60	244	306
120	50/60	0-240	112.0*	12.9‡	1256CL-4P	61	360	410	15, 30, 60	380	450
120	50/60	0-280	112.0*	13.2‡	1256C-4P	61	360	410	15, 30, 60	380	450
240	50/60	0-240	1.25	.30	10-2	18	4.3	5			
240	60	0-264	1.25	.33							
240	50/60	0-240	3.0	.72	20-2	22	10	11			
240	60	0-280	3.0	.84							
240	50/60	0-240	3.0	.72	216U	33	9	11			
240	50/60	0-280	3.0	.84							
240	50/60	0-240	3.0	.72	Q216U	33	9	11			
240	50/60	0-280	3.0	.84							
240	50/60	0-240	3.0	.72	216L	29	10	12			
240	50/60	0-280	3.0	.84	216	29	10	12			
240	60	0-240	4.0§	1.5§	217U	33	9	11			
240	60	0-240	4.0§	1.5§	Q217U	33	9	11			
240	60	0-240	4.0§	1.5§							
240	50/60	0-240	7.5	1.8	116U-2	34	18	21			
240	50/60	0-280	7.5	2.1							
240	50/60	0-240	7.5	1.8	Q116U-2	36	18	21			
240	50/60	0-280	7.5	2.1							
240	50/60	0-240	7.5	1.8	116-2	30	20	24			
240	50/60	0-280	7.5	2.1							
240	50/60	0-240	9.0	2.2	236	46	22	25	5, 15, 30, 60	42	59
240	50/60	0-280	9.0	2.5							

FOOTNOTES

*Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced as shown in appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
†Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from the appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
‡Maximum current is for constant-current load; maximum KVA is for constant-impedance load.
§F and T types not available.
**Requires also one paralleling choke type T5000.
††3PF, 3PN and 3TF types do not have this rating.
§§2PF and 3PN types also available.
‡‡F types do not have this rating.

POWERSTAT® RATING CHART single phase

SINGLE AND 2-GANG UNITS OF THE 136-236 AND 1156C-1256C SERIES ARE AVAILABLE ALSO IN F AND T TYPES WITH NO CHANGE IN RATINGS.

INPUT		OUTPUT			TYPE	SEE PAGE	MANUALLY OPERATED		MOTOR DRIVEN		
VOLTS	FREQUENCY (CYCLES)	VOLTS	MAX. AMPS.	MAX. KVA			WEIGHT (POUNDS)		MOTOR SPEED (SECONDS)	WEIGHT (POUNDS)	
							NET	SHIPPING		NET	SHIPPING
240	60	0-240	10.0§	3.1§	117U-2	34	18	21			
240	60	0-240	10.0§	3.1§	{ Q117U-2 Q117UM-2 }	36	18	21			
240	60	0-240	10.0§	3.1§	117-2	30	20	24			
240	50/60	0-240	20.0	4.8	136-2	49	47	52	5, 15, 30, 60	67	84
240	50/60	0-280	20.0	5.6							
240	50/60	0-240	28.0	6.7	1256CL	55	70	79	5, 15, 30, 60	90	101
240	50/60	0-280	28.0	7.8	1256C	55	70	79	5, 15, 30, 60	90	101
240	50/60	0-240	45.0	10.8	1156CL-2S	57	137	152	5, 15, 30, 60	158	173
240	50/60	0-280	45.0	12.6	1156C-2S	57	137	152	5, 15, 30, 60	158	173
240	50/60	0-240	56.0	13.4	1256CL-2P†	57	144	160	5, 15, 30, 60	165	192
240	50/60	0-280	56.0	15.7	1256C-2P†	57	144	160	5, 15, 30, 60	165	192
240	50/60	0-240	84.0	20.2	1256CL-3P	59	221	280	5, 15, 30, 60	244	306
240	50/60	0-280	84.0	23.5	1256C-3P	59	221	280	5, 15, 30, 60	244	306
240	50/60	0-240	90.0	21.6	1156CL-4PS	61	340	390	15, 30, 60	360	425
240	50/60	0-280	90.0	25.2	1156C-4PS	61	340	390	15, 30, 60	360	425
240	50/60	0-240	112.0	26.9	1256CL-4P	61	360	410	15, 30, 60	380	450
240	50/60	0-280	112.0	31.4	1256C-4P	61	360	410	15, 30, 60	380	450
240	50/60	0-240	135.0	32.4	1156CL-6PS	63	495	595	15, 30, 60	515	620
240	50/60	0-280	135.0	37.8	1156C-6PS	63	495	595	15, 30, 60	515	620
240	50/60	0-240	168.0	40.3	1256CL-6P	63	500	600	15, 30, 60	520	625
240	50/60	0-280	168.0	47.0	1256C-6P	63	500	600	15, 30, 60	520	625
240	50/60	0-240	180.0	43.2	1156CL-8PS	65			30, 60	690	800
240	50/60	0-280	180.0	50.4	1156C-8PS	65			30, 60	690	800
240	50/60	0-240	224.0	53.8	1256CL-8P	65			30, 60	710	820
240	50/60	0-280	224.0	62.7	1256C-8P	65			30, 60	710	820
240	50/60	0-240	270.0	64.8	1156CL-12PS	69			30, 60	1075	1225
240	50/60	0-280	270.0	75.6	1156C-12PS	69			30, 60	1075	1225
240	50/60	0-560	3.0*	.71‡	216U-2	34	18	21			
240	50/60	0-560	3.0*	.71‡	{ Q216U-2 Q216UM-2 }	36	18	21			
240	50/60	0-560	3.0*	.71‡	216-2	30	20	24			
240	50/60	0-560	9.0*	2.1‡	236-2†	49	47	52	5, 15, 30, 60	67	84
240	50/60	0-480	28.0*	6.5‡	1256CL-2S	57	137	152	5, 15, 30, 60	158	173
240	50/60	0-560	28.0*	6.6‡	1256C-2S	57	137	152	5, 15, 30, 60	158	173
240	50/60	0-480	56.0*	12.9‡	1256CL-4PS	61	340	390	15, 30, 60	360	425
240	50/60	0-560	56.0*	13.2‡	1256C-4PS	61	340	390	15, 30, 60	360	425
240	50/60	0-480	84.0*	19.4‡	1256CL-6PS	63	495	595	15, 30, 60	515	620
240	50/60	0-560	84.0*	19.8‡	1256C-6PS	63	495	595	15, 30, 60	515	620
240	50/60	0-480	112.0*	25.8‡	1256CL-8PS	65			30, 60	690	800
240	50/60	0-560	112.0*	26.3‡	1256C-8PS	65			30, 60	690	800
480	50/60	0-480	3.0	1.4	216U-2	34	18	21			
480	50/60	0-560	3.0	1.7							
480	50/60	0-480	3.0	1.4	{ Q216U-2 Q216UM-2 }	36	18	21			
480	50/60	0-560	3.0	1.7							
480	50/60	0-480	3.0	1.4	216-2	30	20	24			
480	50/60	0-560	3.0	1.7							
480	60	0-480	4.0§	3.0§	217U-2	34	18	21			
480	60	0-480	4.0§	3.0§	{ Q217U-2 Q217UM-2 }	36	18	21			
480	60	0-480	4.0§	3.0§	217-2	30	20	24			
480	50/60	0-480	9.0	4.3	236-2	49	47	52	5, 15, 30, 60	67	84
480	50/60	0-560	9.0	5.0							
480	50/60	0-480	28.0	13.4	1256CL-2S	57	137	152	5, 15, 30, 60	158	173
480	50/60	0-560	28.0	15.7	1256C-2S	57	137	152	5, 15, 30, 60	158	173
480	50/60	0-480	56.0	26.9	1256CL-4PS	61	340	390	15, 30, 60	360	425
480	50/60	0-560	56.0	31.4	1256C-4PS	61	340	390	15, 30, 60	360	425
480	50/60	0-480	84.0	40.3	1256CL-6PS	63	495	595	15, 30, 60	515	620
480	50/60	0-560	84.0	47.0	1256C-6PS	63	495	595	15, 30, 60	515	620
480	50/60	0-480	112.0	53.8	1256CL-8PS	65			30, 60	690	800
480	50/60	0-560	112.0	62.7	1256C-8PS	65			30, 60	690	800
480	50/60	0-480	168.0	80.6	1256CL-12PS	69			30, 60	1045	1195
480	50/60	0-560	168.0	94.1	1256C-12PS	69			30, 60	1045	1195
480	50/60	0-480	224.0	107.5	1256CL-16PS	71			60	1425	1585
480	50/60	0-560	224.0	125.4	1256C-16PS	71			60	1425	1585

FOOTNOTES {
*Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced as shown in appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
‡Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from the appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
§Maximum current is for constant-current load; maximum KVA is for constant-impedance load.
†F and T types not available.
‡†F types do not have this rating.

POWERSTAT[®] RATING CHART *three phase*

2-GANG AND 3-GANG UNITS OF THE 136-236 AND 1156C-1256C SERIES ARE AVAILABLE ALSO IN F AND T TYPES WITH NO CHANGE IN RATINGS.

INPUT		OUTPUT			TYPE	SEE PAGE	MANUALLY OPERATED		MOTOR DRIVEN		
VOLTS	FREQUENCY (CYCLES)	VOLTS	MAX. AMPS.	MAX. KVA			WEIGHT (POUNDS)		MOTOR SPEED (SECONDS)	WEIGHT (POUNDS)	
							NET	SHIPPING		NET	SHIPPING
120	50/60	0-120	1.25	.26	10-2	18	4.3	5			
120	60	0-132	1.25	.29							
120	50/60	0-120	3.0	.62	20-2	22	10	11			
120	60	0-140	3.0	.73							
120	50/60	0-120	7.5	1.6	116U-2	34	18	21			
120	50/60	0-140	7.5	1.8							
120	50/60	0-120	7.5	1.6	Q116U-2 Q116UM-2	36	18	21			
120	50/60	0-140	7.5	1.8							
120	50/60	0-120	7.5	1.6	116-2	30	20	24			
120	50/60	0-140	7.5	1.8							
120	60	0-120	10.0§	2.7§	117U-2	34	18	21			
120	60	0-120	10.0§	2.7§	Q117U-2 Q117UM-2	36	18	21			
120	60	0-120	10.0§	2.7§	117-2	30	20	24			
120	50/60	0-120	20.0	4.2	136-2	49	47	52	5, 15, 30, 60	67	84
120	50/60	0-140	20.0	4.8							
120	50/60	0-120	45.0	9.4	1156CL-2D	57	137	152	5, 15, 30, 60	158	173
120	50/60	0-140	45.0	10.9	1156C-2D	57	137	152	5, 15, 30, 60	158	173
120	50/60	0-120	90.0	18.7	1156CL-4D	61	340	390	15, 30, 60	360	425
120	50/60	0-140	90.0	21.8	1156C-4D	61	340	390	15, 30, 60	360	425
120	50/60	0-120	135.0	28.1	1156CL-6D	63	495	595	15, 30, 60	515	620
120	50/60	0-140	135.0	32.7	1156C-6D	63	495	595	15, 30, 60	515	620
120	50/60	0-120	180.0	37.4	1156CL-8D	65			30, 60	690	800
120	50/60	0-140	180.0	43.6	1156C-8D	65			30, 60	690	800
120	50/60	0-120	270.0	56.1	1156CL-12D	69			30, 60	1075	1225
120	50/60	0-140	270.0	65.5	1156C-12D	69			30, 60	1075	1225
120	50/60	0-280	3.0*	.61†	216U-2	34	18	21			
120	50/60	0-280	3.0*	.61†	Q216U-2 Q216UM-2	36	18	21			
120	50/60	0-280	3.0*	.61†	216-2	30	20	24			
120	50/60	0-280	9.0*	1.8†	236-2†	49	47	52	5, 15, 30, 60	67	84
120	50/60	0-240	28.0*	5.6†	1256CL-2D	57	137	152	5, 15, 30, 60	158	173
120	50/60	0-280	28.0*	5.7†	1256C-2D	57	137	152	5, 15, 30, 60	158	173
120	50/60	0-240	56.0*	11.2†	1256CL-4D	61	340	390	15, 30, 60	360	425
120	50/60	0-280	56.0*	11.4†	1256C-4D	61	340	390	15, 30, 60	360	425
120	50/60	0-240	84.0*	16.8†	1256CL-6D	63	495	595	15, 30, 60	515	620
120	50/60	0-280	84.0*	17.1†	1256C-6D	63	495	595	15, 30, 60	515	620
120	50/60	0-240	112.0*	22.3†	1256CL-8D	65			30, 60	690	800
120	50/60	0-280	112.0*	22.8†	1256C-8D	65			30, 60	690	800
240	60	0-240	1.25	.52	10-3	19	6.5	7.3			
240	60	0-240	3.0	1.2	20-3	23	15	16			
240	50/60	0-240	3.0	1.2	216U-2	34	18	21			
240	50/60	0-280	3.0	1.5							
240	50/60	0-240	3.0	1.2	Q216U-2 Q216UM-2	36	18	21			
240	50/60	0-280	3.0	1.5							
240	50/60	0-240	3.0	1.2	216-2	30	20	24			
240	50/60	0-280	3.0	1.5							
240	60	0-240	4.0§	2.6§	217U-2	34	18	21			
240	60	0-240	4.0§	2.6§	Q217U-2 Q217UM-2	36	18	21			
240	60	0-240	4.0§	2.6§	217-2	30	20	24			
240	50/60	0-240	7.5	3.1	116U-3	35	26	30			
240	60	0-280	7.5	3.6							
240	50/60	0-240	7.5	3.1	Q116U-3 Q116UM-3	37	26	30			
240	60	0-280	7.5	3.6							
240	50/60	0-240	7.5	3.1	116-3	31	31	36			
240	60	0-280	7.5	3.6							
240	50/60	0-240	9.0	3.7	236-2	49	47	52	5, 15, 30, 60	67	84
240	50/60	0-280	9.0	4.4							
240	60	0-240	10.0§	5.4§	117U-3	35	26	30			
240	60	0-240	10.0§	5.4§	Q117U-3 Q117UM-3	37	26	30			
240	60	0-240	10.0§	5.4§	117-3	31	31	36			
240	50/60	0-240	20.0	8.3	136-3	50	70	76	5, 15, 30, 60	90	105
240	60	0-280	20.0	9.7							
240	50/60	0-240	28.0	11.6	1256CL-2D	57	137	152	5, 15, 30, 60	158	173

FOOTNOTES { *Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced as shown in appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
‡Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from the appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
§Maximum current is for constant-current load; maximum KVA is for constant-impedance load.
†F types do not have this rating.

POWERSTAT® RATING CHART three phase

2-GANG AND 3-GANG UNITS OF THE 136-236 AND 1156C-1256C SERIES ARE AVAILABLE ALSO IN F AND T TYPES WITH NO CHANGE IN RATINGS.

INPUT		OUTPUT			TYPE	SEE PAGE	MANUALLY OPERATED		MOTOR DRIVEN		
VOLTS	FREQUENCY (CYCLES)	VOLTS	MAX. AMPS.	MAX. KVA			WEIGHT (POUNDS)		MOTOR SPEED (SECONDS)	WEIGHT (POUNDS)	
							NET	SHIPPING		NET	SHIPPING
240	50/60	0-280	28.0	13.6	1256C-2D	57	137	152	5, 15, 30, 60	158	173
240	50/60	0-240	45.0	18.7	1156CL-3Y	59	204	225	5, 15, 30, 60	226	247
240	60	0-280	45.0	21.8	1156C-3Y	59	204	225	5, 15, 30, 60	226	247
240	50/60	0-240	56.0	23.3	1256CL-4D	61	340	390	15, 30, 60	360	425
240	50/60	0-280	56.0	27.2	1256C-4D	61	340	390	15, 30, 60	360	425
240	50/60	0-240	84.0	34.9	1256CL-6D	63	495	595	15, 30, 60	515	620
240	50/60	0-280	84.0	40.7	1256C-6D	63	495	595	15, 30, 60	515	620
240	50/60	0-240	90.0	37.4	1156CL-6Y	63	480	575	15, 30, 60	500	600
240	60	0-280	90.0	43.6	1156C-6Y	63	480	575	15, 30, 60	500	600
240	50/60	0-240	112.0	46.6	1256CL-8D	65			30, 60	690	800
240	50/60	0-280	112.0	54.3	1256C-8D	65			30, 60	690	800
240	50/60	0-240	135.0	56.1	1156CL-9Y	67			30, 60	855	995
240	60	0-280	135.0	65.5	1156C-9Y	67			30, 60	855	995
240	50/60	0-240	168.0	69.8	1256CL-12D	69			30, 60	1045	1195
240	50/60	0-280	168.0	81.5	1256C-12D	69			30, 60	1045	1195
240	50/60	0-240	180.0	74.8	1156CL-12Y	69			30, 60	1095	1245
240	60	0-280	180.0	87.3	1156C-12Y	69			30, 60	1095	1245
240	50/60	0-240	224.0	93.1	1256CL-16D	71			60	1425	1585
240	50/60	0-280	224.0	108.6	1256C-16D	71			60	1425	1585
240	50/60	0-240	270.0	112.2	1156CL-18Y	72			60	1610	1810
240	60	0-280	270.0	130.9	1156C-18Y	72			60	1610	1810
240	60	0-560	3.0*	1.2†	216U-3	35	26	30			
240	60	0-560	3.0*	1.2†	Q216U-3 Q216UM-3	37	26	30			
240	60	0-560	3.0*	1.2†	216-3	31	31	36			
240	60	0-560	9.0*	3.7‡	236-3†	50 51	70	76	5, 15, 30, 60	90	105
240	50/60	0-480	28.0*	11.2‡	1256CL-3Y	59	204	225	5, 15, 30, 60	226	247
240	60	0-560	28.0*	11.4‡	1256C-3Y	59	204	225	5, 15, 30, 60	226	247
240	50/60	0-480	56.0*	22.3‡	1256CL-6Y	63	480	575	15, 30, 60	500	600
240	60	0-560	56.0*	22.8‡	1256C-6Y	63	480	575	15, 30, 60	500	600
240	50/60	0-480	84.0*	33.5‡	1256CL-9Y	67			30, 60	855	995
240	60	0-560	84.0*	34.2‡	1256C-9Y	67			30, 60	855	995
240	50/60	0-480	112.0*	44.7‡	1256CL-12Y	69			30, 60	1095	1245
240	60	0-560	112.0*	45.6‡	1256C-12Y	69			30, 60	1095	1245
480	50/60	0-480	3.0	2.5 }	216U-3	35	26	30			
480	60	0-560	3.0	2.9 }							
480	50/60	0-480	3.0	2.5 }	Q216U-3 Q216UM-3	37	26	30			
480	60	0-560	3.0	2.9 }							
480	50/60	0-480	3.0	2.5 }	216-3	31	31	36			
480	60	0-560	3.0	2.9 }							
480	60	0-480	4.0§	5.2§	217U-3	35	26	30			
480	60	0-480	4.0§	5.2§	Q217U-3 Q217UM-3	37	26	30			
480	60	0-480	4.0§	5.2§	217-3	31	31	36			
480	50/60	0-480	9.0	7.5 }	236-3	50 51	70	76	5, 15, 30, 60	90	105
480	60	0-560	9.0	8.7 }							
480	50/60	0-480	28.0	23.3	1256CL-3Y	59	204	225	5, 15, 30, 60	226	247
480	60	0-560	28.0	27.2	1256C-3Y	59	204	225	5, 15, 30, 60	226	247
480	50/60	0-480	56.0	46.6	1256CL-6Y	63	480	575	15, 30, 60	500	600
480	60	0-560	56.0	54.3	1256C-6Y	63	480	575	15, 30, 60	500	600
480	50/60	0-480	84.0	69.8	1256CL-9Y	67			30, 60	855	995
480	60	0-560	84.0	81.5	1256C-9Y	67			30, 60	855	995
480	50/60	0-480	112.0	93.1	1256CL-12Y	69			30, 60	1095	1245
480	60	0-560	112.0	108.6	1256C-12Y	69			30, 60	1095	1245
480	50/60	0-480	168.0	139.7	1256CL-18Y	72			60	1565	1765
480	60	0-560	168.0	163.0	1256C-18Y	72			60	1565	1765
480	50/60	0-480	224.0	186.2	1256CL-24Y	74			60	2145	2410
480	60	0-560	224.0	217.3	1256C-24Y	74			60	2145	2410

FOOTNOTES { *Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced as shown in appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
†Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from the appropriate rating curves: Figure C on page 25 for 216 types; Figure C on page 42 for 236 types; Figure E on page 52 for 1256C types.
‡Maximum current is for constant-current load; maximum KVA is for constant-impedance load.
§F types do not have this rating.

POWERSTAT® RATING CHART

LW 136 SERIES

LW series Powerstats
and Line Correctors

INPUT		OUTPUT			TYPE	SEE PAGE	MANUALLY OPERATED		MOTOR DRIVEN		
VOLTS	CYCLES	VOLTS	MAX. AMPS.	MAX. KVA			NET	WEIGHT (POUNDS) SHIPPING	SPEEDS	NET	WEIGHT (POUNDS) SHIPPING
Used as Low Voltage Isolated Output Transformer — SINGLE PHASE											
120	50/60	15-0-15	35.0	.52	LW136	85	22	25	5, 15, 30, 60	42	59
120	50/60	30-0-30	35.0	1.0	LW136-2	87	47	52	5, 15, 30, 60	67	84
120	50/60	45-0-45	35.0	1.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
120	50/60	0-30	25.0	.75	LW136	85	22	25	5, 15, 30, 60	42	59
120	50/60	0-60	25.0	1.5	LW136-2	87	47	52	5, 15, 30, 60	67	84
120	50/60	0-90	25.0	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	15-0-15	35.0	.52	LW136	85	22	25	5, 15, 30, 60	42	59
240	50/60	30-0-30	35.0	1.0	LW136-2	87	47	52	5, 15, 30, 60	67	84
240	50/60	45-0-45	35.0	1.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	0-30	25.0	.75	LW136	85	22	25	5, 15, 30, 60	42	59
240	50/60	0-60	25.0	1.5	LW136-2	87	47	52	5, 15, 30, 60	67	84
240	50/60	0-90	25.0	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
480	50/60	30-0-30	35.0	1.0	LW136-2	87	47	52	5, 15, 30, 60	67	84
480	50/60	0-60	25.0	1.5	LW136-2	87	47	52	5, 15, 30, 60	67	84
Used as Low Voltage Isolated Output Transformer — THREE PHASE											
120	50/60	0-30	25.0	1.3	LW136-2	87	47	52	5, 15, 30, 60	67	84
120	50/60	0-30	43.3	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
120	50/60	0-52	25.0	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	0-30	25.0	1.3	LW136-2	87	47	52	5, 15, 30, 60	67	84
240	50/60	0-30	43.3	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	60	0-35	43.3	2.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	0-52	25.0	2.2	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	60	0-60	25.0	2.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
480	60	0-35	43.3	2.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
480	60	0-60	25.0	2.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
Used as Limited Range Transformers — SINGLE PHASE											
120	50/60	105-135	35.0	4.7	LW136	85	22	25	5, 15, 30, 60	42	59
120	50/60	90-150	35.0	5.2	LW136-2	87	47	52	5, 15, 30, 60	67	84
120	50/60	75-165	35.0	5.8	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	225-255	35.0	8.9	LW136	85	22	25	5, 15, 30, 60	42	59
240	50/60	210-270	35.0	9.4	LW136-2	87	47	52	5, 15, 30, 60	67	84
240	50/60	195-285	35.0	10.0	LW136-3	89	70	76	5, 15, 30, 60	90	105
480	50/60	450-510	35.0	17.8	LW136-2	87	47	52	5, 15, 30, 60	67	84
Used as Limited Range Transformers — THREE PHASE											
120	50/60	105-135	35.0	8.2	LW136-2	87	47	52	5, 15, 30, 60	67	84
120	50/60	98-142	35.0	8.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
240	50/60	225-255	35.0	15.5	LW136-2	87	47	52	5, 15, 30, 60	67	84
240	60	210-270	35.0	16.4	LW136-3	89	70	76	5, 15, 30, 60	90	105
480	60	450-510	35.0	30.9	LW136-3	89	70	76	5, 15, 30, 60	90	105
Used as Line Correctors — SINGLE PHASE											
107-137	60	120	35.0	4.2	LW136	85	22	25	5, 15, 30, 60	42	59
226-256	60	240	35.0	8.4	LW136	85	22	25	5, 15, 30, 60	42	59
214-274	60	240	35.0	8.4	LW136-2	87	47	52	5, 15, 30, 60	67	84
202-295	60	240	35.0	8.4	LW136-3	89	70	76	5, 15, 30, 60	90	105
452-512	60	480	35.0	16.8	LW136-2	87	47	52	5, 15, 30, 60	67	84
Used as Line Correctors — THREE PHASE											
107-137	60	120	35.0	7.3	LW136-2	87	47	52	5, 15, 30, 60	67	84
102-146	60	120	35.0	7.3	LW136-3	89	70	76	5, 15, 30, 60	90	105
226-256	60	240	35.0	14.6	LW136-2	87	47	52	5, 15, 30, 60	67	84
219-264	60	240	35.0	14.6	LW136-3	89	70	76	5, 15, 30, 60	90	105
452-512	60	480	35.0	29.1	LW136-3	89	70	76	5, 15, 30, 60	90	105

All the above units are available as "T" models. Add 1 lb. to the above weights for net and shipping weights for single units, 2 lbs. for 2-gang assemblies and 3 lbs. for 3-gang assemblies.

LINE CORRECTOR SERIES

Used as Line Correctors — SINGLE PHASE											
95-135	50/60	115	52.0	6.0	2106LC	92	65	80	5, 15, 30, 60	85	105
95-135	50/60	115	130.0	15.0	2115LC	92	175	200	5, 15, 30, 60	195	225
195-255	50/60	230	32.5	7.5	2207LC	92	75	90	5, 15, 30, 60	95	115
195-255	50/60	230	120.0	27.5	2228LC	92	180	205	5, 15, 30, 60	200	230
400-520	50/60	460	15.0	6.6	2407LC	92	70	85	5, 15, 30, 60	90	110
400-520	50/60	460	40.0	17.6	2418LC	92	180	205	5, 15, 30, 60	200	230
Used as Line Correctors — THREE PHASE											
195-255	50/60	230	25.0	10.0	3210YLC	94	185	210	5, 15, 30, 60	205	235
195-255	50/60	230	38.0	15.0	3215YLC	94	200	225	5, 15, 30, 60	220	250
195-255	50/60	230	50.0	20.0	3220YLC	94	215	240	5, 15, 30, 60	235	265
195-255	50/60	230	113.0	45.0	3245YLC	94	535	615	5, 15, 30, 60	255	640
195-255	50/60	230	175.0	70.0	3270DLC	94	685	795	15, 30, 60	705	820
400-520	50/60	460	16.0	12.5	3412YLC	94	185	210	5, 15, 30, 60	205	235
400-520	50/60	460	22.0	17.5	3417YLC	94	200	225	5, 15, 30, 60	220	250
400-520	50/60	460	33.0	25.0	3425YLC	94	215	240	5, 15, 30, 60	235	265
400-520	50/60	460	66.0	50.0	3450YLC	94	500	545	5, 15, 30, 60	520	595
400-520	50/60	460	100.0	75.0	3475YLC	94	550	630	5, 15, 30, 60	570	655
420-500	50/60	460	131.0	100.0	34100YLC	94	550	630	5, 15, 30, 60	570	655

When units of the LC series are used as limited range adjustable transformers, the input voltage is the output voltage shown in the above chart and the output voltage is the input voltage shown in the above chart.

POWERSTAT[®] RATING CHART

Enclosed, Oil-Cooled,
Explosion-Proof and Voltbox

ENCLOSED TYPES

INPUT		OUTPUT			TYPE	SEE PAGE	WEIGHT (POUNDS)	
VOLTS	CYCLES	VOLTS	MAX. AMPS.	MAX. KVA			NET	SHIPPING
SINGLE PHASE								
120	50/60	0-120	6.5	.78	}	39	13	15
120	50/60	0-140	6.5	.91				
120	60	0-120	8.5§	1.5§	}	39	13	15
120	50/60	0-280	2.6*	.31†				
240	50/60	0-240	2.6	.62	}	39	13	15
240	50/60	0-280	2.6	.73				
240	60	0-240	3.5§	1.2§	}	39	13	15
240	50/60	0-240	6.5	1.6				
240	50/60	0-280	6.5	1.8	}	40	24	28
240	60	0-240	8.5§	3.0§				
240	50/60	0-560	2.6*	.61†	}	40	24	28
480	50/60	0-480	2.6	1.2				
480	50/60	0-560	2.6	1.5	}	40	24	28
480	60	0-480	3.5§	2.5§				
THREE PHASE								
120	50/60	0-120	6.5	1.4	}	40	24	28
120	50/60	0-140	6.5	1.6				
120	60	0-120	8.5§	2.6§	}	40	24	28
120	50/60	0-280	2.6*	.53†				
240	50/60	0-240	2.6	1.1	}	40	24	28
240	50/60	0-280	2.6	1.3				
240	60	0-240	3.5§	2.2§	}	40	24	28
240	50/60	0-240	6.5	2.7				
240	60	0-280	6.5	3.2	}	41	34	39
240	60	0-240	8.5§	5.2§				
240	60	0-560	2.6*	1.1†	}	41	34	39
480	50/60	0-480	2.6	2.2				
480	60	0-560	2.6	2.5	}	41	34	39
480	60	0-480	3.5§	4.3§				

OIL-COOLED

120	50/60	0-120	15.0	1.8	}	79	27	32
120	50/60	0-140	15.0	2.1				
120	50/60	0-120	30.0	3.6	}	79	70	100
120	50/60	0-140	30.0	4.2				
120	50/60	0-280	6.0**	.71††	}	79	27	32
240	50/60	0-240	6.0	1.4				
240	50/60	0-280	6.0	1.7	}	79	74	105
120	50/60	0-240	12.0**	1.4††				
240	50/60	0-240	12.0	2.9	}	79	74	105
120	50/60	0-280	12.0**	1.4††				
240	50/60	0-280	12.0	3.4	}	79	74	105

OTHER TYPES AVAILABLE ON SPECIAL ORDER

EXPLOSION-PROOF

120	50/60	0-120	7.5	.90	}	79	35	47
120	50/60	0-140	7.5	1.0				
120	50/60	0-120	12.0	1.4	}	79	125	142
120	50/60	0-140	12.0	1.7				
120	50/60	0-280	3.0**	.35††	}	79	35	47
240	50/60	0-240	3.0	.72				
240	50/60	0-280	3.0	.84	}	79	125	142
120	50/60	0-240	6.0**	.69††				
240	50/60	0-240	6.0	1.4	}	79	125	142
120	50/60	0-280	6.0**	.71††				
240	50/60	0-280	6.0	1.7	}	79	125	142

VOLTBOX[®] A-C POWER SUPPLIES

120	50/60	0-140	7.5	1.0	UC1M	80	13	17
240	50/60	0-280	3.0	.84	UC2M	80	13	17

OTHER TYPES AVAILABLE ON SPECIAL ORDER

FOOTNOTES

- §Current is maximum for a constant-current load; KVA is maximum for a constant-impedance load.
*Maximum current in output voltage range from 0 to 25 percent above line voltage. At higher output voltages, output current must be reduced according to rating curve Figure C on page 25 except instead of 3.0 amperes as a base use 2.6 amperes.
†Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure C on page 25 except instead of 3.0 amperes as a base use 2.6 amperes.
**Maximum output current in output voltage range from 0 to 150 volts. At higher output voltages, output current must be reduced according to rating curve Figure A on page 76.
††Maximum KVA at maximum output voltage. Maximum KVA at lower output voltages may be calculated from rating curve Figure A on page 76.

REPLACEMENT BRUSHES

BRUSH TYPE	POWERSTAT SERIES	BRUSH TYPE	POWERSTAT SERIES	BRUSH TYPE	POWERSTAT SERIES	BRUSH TYPE	POWERSTAT SERIES	BRUSH TYPE	POWERSTAT SERIES
RB-10	10	RB-116	116, 116U, UC1M	RB-Q116	Q116U	RB-Q116M	Q116UM	RB-1126	1126, 2106LC, 2407LC, 3210YLC, 3215YLC, 3220YLC
RB-20	20	RB-117	117, 117U	RB-Q117	Q117U	RB-Q117M	Q117UM	RB-1226	1226, 2207LC, 3412YLC, 3417YLC, 3425YLC
RB-136	136	RB-216	216, 216U, UC2M	RB-Q216	Q216U	RB-Q216M	Q216UM	RB-1156-B	1156C, 2115LC, 2418LC, 3245YLC
RB-236	236	RB-217	217, 217U	RB-Q217	Q217U	RB-Q217M	Q217UM	RB-1256-B	1256C, 2228LC, 3270DLC, 3450YLC, 3475YLC, 34100YLC
RB-LW136	LW136								

Includes all variations on basic units such as enclosed, oil-cooled and explosion-proof types.

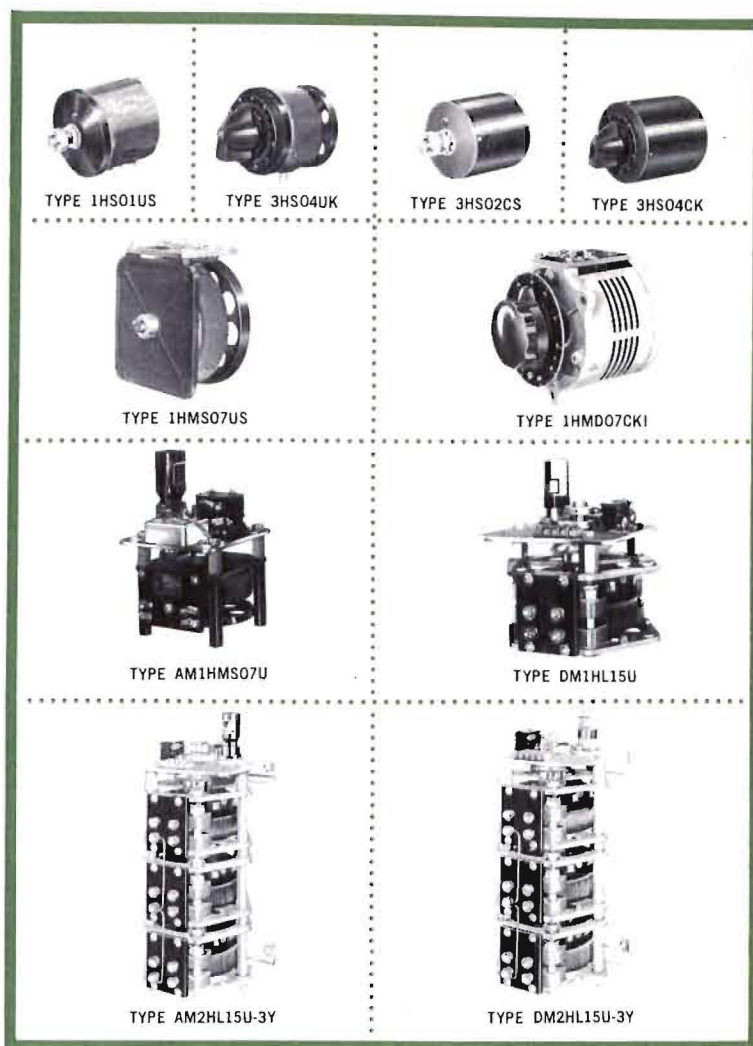
SPECIAL USE TYPES

POWERSTAT® variable transformers

POWERSTAT is the most extensive line of variable transformers. Many standard assemblies are not included in this catalog because of the specialized nature of their applications. Many requirements that were formerly considered to be "special" can now be met with standard POWERSTAT assemblies. Where standard units do not fill the requirements, complete engineering and production facilities are available to develop an assembly to desired specifications.

COMPLETE STANDARD LINE FOR HIGH FREQUENCY APPLICATIONS

The trend aboard ship, in aircraft, guided missile installations and to a lesser degree in factories is the use of high-frequency a-c systems. Standard POWERSTAT variable transformers are available for 400/800 cycle duty which perform the same task as conventional 60 cycle units but weigh only one third as much and occupy only one half the cubic space. Designed for single and three phase, 400/800 cycle operation, manually-operated and motor-driven air-cooled types are offered for 28, 120, 240 and 480 volt service in ratings from 56 VA to 8.7 KVA to meet applicable military specifications. Described in Bulletin P257H.



OTHER POWERSTATS



TYPE 10-1002

offers 360° rotation for controlling servo-mechanisms and temperature regulators.
INPUT: 120 volts, 50, 60 cycles, single phase
OUTPUT: 0-120 volts, 1.25 ampere, 150 VA



TYPE 116-1005

with pilot light to indicate when unit is energized.
INPUT: 120 volts, 50, 60 cycles, single phase
OUTPUT: 0-140 volts, 7.5 amperes, 1.0 KVA



TYPE 116-1004

A motor-driven 1 KVA unit featuring rapid control and silent operation for use on 50 or 60 cycles.
INPUT: 120 volts, 50/60 cycles, single phase
OUTPUT: 0-140 volts, 7.5 amperes, 1.0 KVA



TYPE 1126-1001

for high frequency duty. Has dust-proof container, AN connector and locking screwdriver slot control.
INPUT: 115 volts, 400/800 cycles, single phase
OUTPUT: 0-130 volts, 15.0 amperes, 1.95 KVA

other products

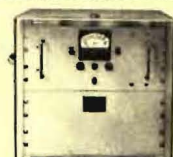
manufactured by THE SUPERIOR ELECTRIC COMPANY include a complete line of standard voltage control equipment for application in laboratories, industry and commerce . . . light control apparatus for industrial, commercial and residential uses.

STABILINE® Automatic Voltage Regulators

Maintain a constant output voltage regardless of line or load changes. Type IE (Instantaneous Electronic), is instantaneous in action and has no moving parts. Type EMT (Electro Mechanical Transistorized) corrects faster than most regulators and is ideal for controlling large loads without waveform distortion. Type TM (Tubeless Magnetic) designed for unattended and critical applications, has no tubes, transistors or moving parts. Full details in Bulletin S358G.



TYPE IE5101R



TYPE EMT4115



TYPE TM7105

(without
cabinet)

VARICELL® D-C Power Supplies

Provide a source of regulated and stabilized variable d-c voltage from a-c power lines. Output voltage is unaffected by line or load current variations. Stabilization and regulation is ± 0.25 volts and R.M.S. ripple voltage never exceeds 0.1 volts. Information in Bulletin V1051.



VARICELL

SUPERIOR 5-WAY Binding Posts

Offer complete insulation, a current capacity of 30 amperes, and a working voltage of 1000 volts. Easy to install. Metal parts are gold-plated for longer life, better electrical contact, faster soldering. Available in black, red, yellow, blue, green and white nylon for permanent clamping, spade lug, clip-lead, banana plug, or looping and clamping. Bulletin BP958.



black, red,
yellow, blue,
green and white

SUPERIOR 5-WAY BINDING POSTS

LUXTROL® Light Control Equipment

To smoothly dim, brighten and blend light, LUXTROL light control equipment is offered in numerous types to suit the needs of individual applications.

NON-INTERLOCKING TYPES find wide use in auditoriums, single rooms and other installations where only a few circuits require control. Manual and motor-driven types in ratings from 1,000 to 30,000 watts. Bulletin L1158N.

POSITIONER CONTROL is offered for all motor-driven LUXTROLS of the non-interlocking type. Provides smooth finger-tip remote control from a small, compact control station. Complete programs can be pre-set and actuated when desired. Bulletin L658R.

AUTOMATIC LIGHT CONTROLLER is also used with motor-driven LUXTROLS. Once the desired illumination level for the installation is pre-set, it is automatically maintained at that level without further attention. Bulletin L558A.

INTERLOCKING TYPES are available in 2500 and 6000 watt ratings. Interlocking LUXTROLS may be operated independently, mastered or grand-mastered. Supplied with individual hand lever and indicating drum. Bulletin L458I.

MAGNETIC AMPLIFIER SYSTEM is the ultimate in light control equipment. Provides control from a compact, console-type board with the magnetic amplifier dimmers installed in any out-of-the-way space. Available in 3000, 6000 and 15,000 watt capacities. Bulletin L858MA.

PACKAGED TYPES are well suited for small theatres, schools, churches and other applications where expense is a governing factor. Available in ratings from 6,000 to 15,000 watts. Bulletin L1058P.

TYPES FOR MOUNTING IN A WALL are used in place of on-off wallswitches to control any number of incandescent or fluorescent lamps up to the full rated capacity of the LUXTROL. Attractive and easy to install. Bulletin L758W.



TYPE D1000H



TYPE D2000



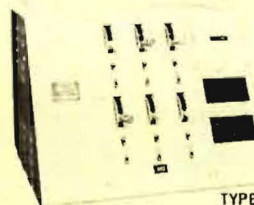
TYPE DMZ2000



TYPE MA3000



TYPE D2500H



TYPE DC1P6-1000



TYPE D6000H



TYPE FOR MOUNTING
IN A WALL



write to
**THE
SUPERIOR ELECTRIC
COMPANY**

Bristol, Connecticut, U.S.A.



POWERSTAT[®]

variable transformers

BUILDINGS & GROUNDS
DIVISION

AUG 7 1958

RECEIVED

**MANUALLY-OPERATED
MOTOR-DRIVEN
LINE CORRECTORS
OIL-COOLED
EXPLOSION-PROOF
VOLTBOX
DOUBLE-WOUND
ENCLOSED
COMPONENTS**

Effective August 1, 1958

PRICE LIST PL-P258G, REV. 1

SUPERSEDES PL-P258G



**THE SUPERIOR ELECTRIC COMPANY
BRISTOL, CONNECTICUT, U. S. A.**

Type Price

10 series	
2PF10	\$ 16.50
10	8.50
10-2	25.00
10-3	40.00

20 series

20	12.50
20-2	37.00
20-3	59.50

116 series

116L	24.00
116	24.00
3PF116L	30.00
3PF116	30.00
3PN116L	27.50
3PN116	27.50
3TF116L	30.00
3TF116	30.00
116-2	54.00
116-3	77.00
116U	18.00
Q116U	16.00
Q116UM	19.00
116U-2	44.50
Q116U-2	37.00
Q116UM-2	43.00
116U-3	61.50
Q116U-3	58.00
Q116UM-3	67.00

Type Price

117 series	
117	\$ 22.50
2PF117	28.00
3PN117	31.50
117-2	55.00
117-3	78.50
117U	18.50
Q117U	16.50
Q117UM	19.50
117U-2	45.50
Q117U-2	38.00
Q117UM-2	44.00
117U-3	63.00
Q117U-3	59.50
Q117UM-3	68.50

216 series

216L	26.00
216	26.00
3PF216L	33.00
3PF216	33.00
3PN216L	30.00
3PN216	30.00
3TF216L	33.00
3TF216	33.00
216-2	58.00
216-3	83.00
216U	20.00
Q216U	18.00
Q216UM	21.00
216U-2	49.00
Q216U-2	41.00

Type Price

216 series	
Q216UM-2	\$ 47.00
216U-3	69.50
Q216U-3	64.00
Q216UM-3	73.00

217 series

217	25.00
2PF217	28.00
3PN217	31.50
217-2	60.00
217-3	86.00
217U	21.00
Q217U	18.50
Q217UM	21.50
217U-2	51.00
Q217U-2	42.00
Q217UM-2	48.00
217U-3	72.50
Q217U-3	65.50
Q217UM-3	74.50

EN types

EN116	25.00
EN116-2	54.00
EN116-3	77.00
EN117	25.50
EN117-2	55.00
EN117-3	78.50
EN216	27.00
EN216-2	58.00

Type

EN ty	
EN216-3	
EN217	
EN217-2	
EN217-3	

136 s

136	
136T	
F136	
2PF136	
2TF136	
3PF136	
3PN136	
3TF136	
136-2	
136T-2	
F136-2	
136-3	
136T-3	
F136-3	

236 s

236	
236T	
F236	
2PF236	
2TF236	
3PF236	
3PN236	
3TF236	
236-2	
236T-2	
F236-2	

MOTOR**MB136 series**

MB136	\$ 175.00 [†]
MB136T	180.00 [†]
MBF136	180.00 [†]
MB136-2	242.00 ^{*†}
MB136T-2	252.00 ^{*†}
MBF136-2	252.00 ^{*†}
MB136-3	295.00 [†]
MB136T-3	310.00 [†]
MBF136-3	310.00 [†]

MB236 series

MB236	175.00 [†]
MB236T	180.00 [†]
MBF236	180.00 [†]
MB236-2	242.00 [†]
MB236T-2	252.00 [†]
MBF236-2	252.00 [†]
MB236-3	295.00 [†]

*Add \$13.00 for T5000 choke for "P" connection.

MB236 series

MB236T-3	\$ 310.00 [†]
MBF236-3	310.00 [†]

M1156C series**

M1156C	243.00 [†]
M1156CT	253.00 [†]
MF1156C	253.00 [†]
M1156C-2D	386.00 [†]
M1156CT-2D	406.00 [†]
MF1156C-2D	406.00 [†]
M1156C-2P	394.00 [†]
M1156C-2S	386.00 [†]
M1156CT-2S	406.00 [†]
MF1156C-2S	406.00 [†]
M1156C-3P	543.00 [†]
M1156C-3Y	519.00 [†]
M1156CT-3Y	549.00 [†]
MF1156C-3Y	549.00 [†]
M1156C-4D	722.00 [†]

†5, 15, 30 and 60-second speeds available.

M1156C series**

M1156C-4P	\$ 738.00 [†]
M1156C-4PS	722.00 [†]
M1156C-6D	1140.00 [†]
M1156C-6P	1140.00 [†]
M1156C-6PS	1124.00 [†]
M1156C-6Y	1116.00 [†]
M1156C-8D	1750.00 [†]
M1156C-8PS	1750.00 [†]
M1156C-9Y	2150.00 [†]
M1156C-12D	2792.00 [†]
M1156C-12PS	2792.00 [†]
M1156C-12Y	2750.00 [†]
M1156C-18Y	4388.00 ^{††}

M1256C series**

M1256C	243.00 [†]
M1256CT	253.00 [†]
MF1256C	253.00 [†]

†15, 30 and 60-second speeds only

DAILY OPERATED

Type	Price	Type	Price	Type	Price	Type	Price
EN types		236 series		1256C series **		line correctors	
N216-3	\$ 83.00	236-3	\$ 170.00	1256CT-2D	\$ 281.00	three phase	
N217	28.00	236T-3	185.00	F1256C-2D	281.00	3210YLC	\$ 330.00
N217-2	60.00	F236-3	185.00	1256C-2P	269.00	3215YLC	365.00
N217-3	86.00			1256C-2S	261.00	3220YLC	400.00
136 series		1156C series**		1256CT-2S	281.00	3245YLC	750.00
36	50.00	1156C	118.00	F1256C-2S	281.00	3270DLC	1260.00
36T	55.00	1156CT	128.00	1256C-3P	418.00	3412YLC	290.00
136	55.00	F1156C	128.00	1256C-3Y	394.00	3417YLC	323.00
PF136	65.00	1156C-2D	261.00	1256CT-3Y	424.00	3425YLC	366.00
TF136	65.00	1156CT-2D	281.00	F1256C-3Y	424.00	3450YLC	550.00
PF136	65.00	F1156C-2D	281.00	1256C-4D	597.00	3475YLC	780.00
PN136	65.00	1156C-2P	269.00	1256C-4P	613.00	34100YLC	800.00
TF136	65.00	1156C-2S	261.00	1256C-4PS	597.00	oil-cooled	
36-2	117.00*	1156CT-2S	281.00	1256C-6D	1015.00	O-116	105.00
36T-2	127.00*	F1156C-2S	281.00	1256C-6P	1015.00	O-216	110.00
136-2	127.00*	1156C-3P	418.00	1256C-6PS	999.00	O-1126L	245.00
36-3	170.00	1156C-3Y	394.00	1256C-6Y	991.00	O-1126	245.00
36T-3	185.00	1156CT-3Y	424.00	LW136 series		O-1226L	245.00
136-3	185.00	F1156C-3Y	424.00	LW136	80.00	O-1226	245.00
236 series		1156C-4D	597.00	LW136T	85.00	For larger capacities refer inquiries to factory.	
236	50.00	1156C-4P	613.00	LW136-2	177.00	explosion-proof	
236T	55.00	1156C-4PS	597.00	LW136T-2	187.00	X-116	175.00
236	55.00	1156C-6D	1015.00	LW136-3	260.00	X-216	180.00
2PF236	65.00	1156C-6P	1015.00	LW136T-3	275.00	X-1126L	295.00
2TF236	65.00	1156C-6PS	999.00	line correctors		X-1126	295.00
3PF236	65.00	1156C-6Y	991.00	single phase		X-1226L	295.00
3PN236	65.00	1256C series**		2106LC	110.00	X-1226	295.00
3TF236	65.00	1256C	118.00	2115LC	280.00	voltbox	
236-2	117.00	1256CT	128.00	2207LC	118.00	UC1M	65.00
236T-2	127.00	F1256C	128.00	2228LC	323.00	UC2M	70.00
F236-2	127.00	1256C-2D	261.00	2407LC	135.00	For larger capacities refer inquiries to factory.	
				2418LC	257.00		

MOTOR DRIVEN

M1256C series		M1256C series **		line correctors		
				single phase		
\$ 738.00†	M1256C-2D	\$ 386.00‡	M1256C-8P	\$1803.50\$	M2106LC	\$ 250.00†
722.00†	M1256CT-2D	406.00‡	M1256C-8PS	1750.00\$	M2115LC	420.00†
1140.00†	MF1256C-2D	406.00‡	M1256C-9Y	2150.00\$	M2207LC	258.00†
1140.00†	M1256C-2P	394.00‡	M1256C-12D	2750.00\$	M2228LC	463.00†
1124.00‡	M1256C-2S	386.00‡	M1256C-12PS	2750.00\$	M2407LC	275.00†
1116.00†	M1256CT-2S	406.00‡	M1256C-12Y	2750.00\$	M2418LC	397.00†
1750.00\$	MF1256C-2S	406.00‡	M1256C-16D	3500.00‡†	three phase	
1750.00\$	M1256C-3P	543.00‡	M1256C-16PS	3500.00‡†	M3210YLC	470.00†
2150.00\$	M1256C-3Y	519.00‡	M1256C-18Y	4325.00‡†	M3215YLC	505.00†
2792.00\$	M1256CT-3Y	549.00‡	M1256C-24Y	5625.00‡†	M3220YLC	540.00†
2792.00\$	MF1256C-3Y	549.00‡	MBLW136 series		M3245YLC	890.00†
2750.00\$	M1256C-4D	722.00‡	MBLW136	205.00‡	M3270DLC	1400.00†
4388.00‡	M1256C-4P	738.00‡	MBLW136T	210.00‡	M3412YLC	430.00†
	M1256C-4PS	722.00‡	MBLW136-2	302.00‡	M3417YLC	463.00†
	M1256C-6D	1140.00‡	MBLW136T-2	312.00‡	M3425YLC	506.00‡
	M1256C-6P	1140.00‡	MBLW136-3	385.00‡	M3450YLC	690.00‡
	M1256C-6PS	1124.00‡	MBLW136T-3	400.00‡	M3475YLC	920.00†
	M1256C-6Y	1116.00‡			M34100YLC	940.00‡
	M1256C-8D	1750.00\$				

†30 and 60-second speeds only. ‡60-second speed only. **All types in the 1156C and 1256C series are available with L connections at the same price as listed above.

COMPONENT PARTS								
TYPE	FUSE		BRUSH		KNOB	DIAL		
	Current (Amperes)	Cost Each	Type Number	Cost Each	Cost Each	Calibration	Cost Each	
2PF10	1.0	\$0.25	RB-10	\$1.00	\$0.35	REFER TO CATALOG P258G FOR DIAL CALIBRATION FOR SPECIFIC UNITS	\$0.35	
10			RB-10	1.00	.35		.25	
20			RB-20	1.00	1.00		.50	
116, EN116, UC1M	8.0	0.25	RB-116	1.25	1.00		.50	
Q116U			RB-Q116	1.25	1.00		.50	
Q116UM			RB-Q116M	1.75	1.25		.50	
117, EN117	15.0	0.25	RB-117	1.25	1.00		.50	
Q117U			RB-Q117	1.25	1.00		.50	
Q117UM			RB-Q117M	1.75	1.25		.50	
216, EN216, UC2M	3.0	0.25	RB-216	1.25	1.00		.50	
Q216U			RB-Q216	1.25	1.00		.50	
Q216UM			RB-Q216M	1.75	1.25		.50	
217, EN217	6.0	0.25	RB-217	1.25	1.00		.50	
Q217U			RB-Q217	1.25	1.00		.50	
Q217UM			RB-Q217M	1.75	1.25		.50	
136	20.0	0.25	RB-136	1.75	1.75		1.20	
236	10.0	0.25	RB-236	1.75	1.75		1.20	
LW136			RB-LW136	2.25	1.75		1.20	
X-1126, 2106LC, 2407LC			RB-1126	2.25	2.00		1.20	
X-1226, 2207LC			RB-1226	2.25	2.00		1.20	
3210YLC, 3215YLC, 3220YLC			RB-1126	2.25	2.25		1.20	
3412YLC, 3417YLC, 3425YLC			RB-1226	2.25	2.25		1.20	
0-1126			RB-1126	2.25	3.25		1.20	
0-1226			RB-1226	2.25	3.25		1.20	
1156C, 2418LC	45.0	.50	RB-1156-B*	3.00	3.00		2.50	
2115YLC, 3245YLC							2.50	
1256C, 3270DLC	30.0	.25	RB-1256-B †	3.00	3.00		2.50	
2228LC, 3450YLC, 3475YLC, 34100YLC							2.50	
* For old style units with leaf springs order brush set type RB-1156 which consists of 2 brushes. † For old style units with leaf springs order brush set type RB-1256 which consists of 2 brushes.								
Raise-Lower Switch Type BHD14096							\$ 5.50	
Paralleling Choke Type T5000							13.00	

Please Note

All prices in this price list are subject to change without notice. This price list supersedes all previous price lists.

All prices listed in this sheet are net prices for single units, f.o.b. Bristol, Connecticut. Units stocked in West Coast warehouse are f.o.b. Van Nuys, California. Trade and quantity discounts will be furnished upon request. Our terms are 1% ten days; net 30 days. Granting of credit is subject to the approval of The Superior Electric Company's credit department. When units are destined for foreign shipment, a charge of 5% must be added to the indicated domestic prices for commercial export packing.

The minimum billing on any domestic purchase order accepted is \$5.00.